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Survey Reveals Wide Extent of "Hand-to-mouth" Purchasing

Orders Becoming Smaller and More Frequent as Buying Technique Improves —Trends Affecting Metal Industries

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A DECIDED shortening in the period of ordering ahead is indicated by a survey made by the Brookings Institute of Economics. The accompanying article is of special interest as it emphasizes the change in iron and steel, machinery, wire, pipe, hardware and nonferrous metals. Though the survey was broader than these, including chemicals, drugs, coal, oil, lumber, paper and other commodities, specific data for the latter have been deleted from the general tabular matter. The article is reprinted from the July, 1929, issue of The Purchasing Agent.

IN THE early part of 1928, an inquiry was undertaken by the Brookings Institute of Economics, Washington, D. C., with the co-operation of the National Association of Purchasing Agents, to determine whether certain changes were taking place in the methods, practices and organization of industrial purchasing. A questionnaire was sent to the members of the association, and replies were received from about 130 companies located in various parts of the country, representing many industries, and buying a great variety of materials. The present article is based on the information and data contained in the replies, analyzed to bring out salient features.

1. Has the Period of Ordering Ahead Been Shortened?

The first question was designed to find out to what extent, if at all, the period of ordering ahead was being shortened. It was as follows:

How far ahead, generally speaking, has your company been in the habit of placing orders for two or more of the important commodities purchased? Answer in days for indicated years: 1914, 1918, 1922, 1924, 1926, 1928.

In cases where one company gave data for more than one commodity purchased, those for each commodity have been considered as an individual report. A count was made of the number of reports of advance order periods falling within given period groups. Then the results of the count were expressed as percentages of the total number of reports in each year, and presented in Table I.

A decided shortening in the period of ordering ahead is indicated by the reports received. The percentage of reports showing that orders were placed less than 60 days in advance increases steadily through the period covered by the survey so that it is nearly three times as great in 1928 as in 1914. The percentage of those showing ordering from 60 to 120 days in advance changes very little

Table I

Number of Reports Showing Ordering in Advance, as Indicated

(As a percentage of the number of reports for the year)

Number of Days in Advance	1914 107 reports	1918 128 reports	1922 154 reports	1924 173 reports	1926 182 reports	1928 184 reports
Less than 14	2	1	2	2	5	6
14 to 30	2	1	5	5	6	8
30 to 60	13	13	16	24	26	33
60 to 90	20	16	21	20	22	15
90 to 120	25	26	29	23	20	19
120 to 180	8	13	8	8	5	4
180 to 360	19	17	13	10	9	8
360 or over	11	13	6	8	7	7

through the period, except for an increase of nearly 20 per cent in 1922 and a similar decrease in 1928. The percentage of those showing ordering farthest in advance, 120 days or more, decreases until it becomes half as large in 1928 as in 1914.

The most common period for placing orders ahead was 90 to 120 days in 1914; it was 30 to 60 days in 1928. The second most common period in 1914 was 180 to 360 days ahead; in 1928 the second most common period was 90 to 120 days ahead.

Has the change varied from industry to industry? Or, has each industry changed in about the same way as each other industry? To answer this question, the replies, on those commodities best represented, were grouped according to commodities purchased, after which a new count was made. The results are presented in Table II. It will be noted that the groupings of the periods for ordering ahead are different from those in the general table.

General Observations Made

While the details of particular commodities may best be studied in the tables, a few general observations are worth making. Orders for steel were placed 60 days or more in advance by 92 per cent of those reporting in 1914, and by only 40 per cent in 1928. No companies ever ordered pig iron less than 30 days in advance and never less than 60 days in advance before 1924. In fact, 50 per cent of them placed their orders 180 days or more in advance in 1914. Yet 33 per cent of them ordered pig iron only 30 to 60 days ahead in 1928. Before 1922 no company reported placing orders for nonferrous metals less than 30 days in advance, yet in 1928 almost half of the reports indicated that their companies were so placing their orders. At least 40 per cent of companies reporting purchases of coal or oil placed their orders a year or more in advance. Orders for lumber, poles, or posts, never placed less than 30 days in advance, were most often placed more than 60 days ahead before 1924, but from 30 to 60 days ahead since.

Has every company shortened its order period? Were the changes disclosed in the tables caused by all or a large proportion of the companies shifting to a somewhat shorter period? They might have been caused by some companies shifting from a very long period to a very short one, while others changed perhaps not at all. To answer this question, a count was made of the reports to see how many indicated a change in the period of ordering ahead during the years under consideration. Comparisons were made of 1924 with 1914, of 1928 with 1924, and of 1928 with 1914.. The percentage falling in each group is shown in Table III.

It appears that somewhat more than half of the reports show a shortened

Table II

Number of Reports Showing Ordering of Certain Commodities in Advance, as Indicated

(As a percentage of the number of reports for the commodity for the year)

Number of Days in Advance	1914	1918	1922	1924	1926	1928
I. Steel						
Less than 30	....	....	....	3	3	8
30 to 60	8	11	18	30	39	52
60 to 90	9	18	30	23	29	13
90 to 120	38	21	34	26	21	21
120 or over	35	50	18	18	8	6
II. Pig Iron						
Less than 60*	....	....	....	15	17	33
60 to 90	17	17	25	23	25	8
90 to 120	17	25	42	39	42	34
120 to 180	16	16	16	8	....	8
180 or over	50	42	17	15	16	17
III. Nonferrous Metals						
Less than 30	....	....	8	17	23	46
30 to 90	25	30	25	25	23	16
90 to 120	25	10	17	17	23	15
120 to 180	25	40	33	25	23	15
180 or over	25	20	17	16	8	8
IV. Machinery, Wire, Pipe, Hardware						
Less than 60	18	22	26	28	36	45
60 to 90	28	28	27	22	27	36
90 to 180	27	28	26	41	32	14
180 or over	27	22	21	9	5	5

*There were no reports of orders placed less than 30 days in advance.

Table III

Number of Reports Showing a Change in the Period of Ordering in Advance

(As a percentage of the total number of reports for indicated commodity)

Commodity Ordered	Direction of Change	1924 Compared with 1914	1928 Compared with 1924	1928 Compared with 1914
All commodities	Decrease	42	40	58
	No change	52	49	36
	Increase	6	11	6
Steel	Decrease	57	47	76
	No change	35	47	16
	Increase	8	6	8
Pig iron	Decrease	50	33	78
	No change	50	59	....
	Increase	....	8	22
Nonferrous metals	Decrease	56	35	67
	No change	33	20	11
	Increase	11	45	22
Machinery, wire, pipe, hardware	Decrease	46	48	55
	No change	36	52	27
	Increase	18	....	18

period of ordering ahead when 1928 is compared with 1914. Thirty-six per cent show no change and six actually show placing of orders for the same product farther ahead than before. The analysis of the reports for the two shorter periods shows that in each instance about half of the reports showed a change in their practice, a few have lengthened the period, but about 40 per cent indicated buying on a more hand-to-mouth basis.

In the purchases of certain commodities there are striking exceptions to the general changes, however. For nonferrous metals, for example, the period for ordering ahead has increased in 45 per cent of the cases, when 1928 is compared with 1924.

Table IV

Number of Reports Showing Indicated Stock Burden

(As a percentage of the total number of reports for each year)

Stock Burden (Average inventory as a percentage of the year's requirements)	78 reports	92 reports	115 reports	126 reports	131 reports	129 reports
Less than 10	10	11	15	17	17	25
10 to 20	21	18	22	25	32	36
20 to 30	30	25	33	33	37	26
30 to 40	15	18	15	12	6	7
40 to 50	5	8	4	3	1	....
50 to 75	14	13	3	5	5	5
75 or over	5	7	8	5	2	1

Table IV-A

Stock Burden	1914	1918	1922	1924	1926	1928
Less than 30	61	54	70	75	86	87
30 or more	39	46	30	25	14	13

II. Smaller Orders

Have orders been declining in size, and are they being placed with greater frequency now than a few years ago? Inquiry was made on both of these points. The returns show that the changes in periods for ordering ahead discussed above have been accompanied by changes in the size of orders and in the frequency with which purchases are made. The replies are expressed as percentages of the total number of replies to each question.

1. Is your company buying in smaller quantities in proportion to its needs now than it did five years ago?
Yes, 79 No, 21

2. Does your company order at more frequent intervals now than it did five years ago?
Yes, 86 No, 14

Table V

Number of Reports Showing Indicated Stock Burden of Certain Commodities

(As a percentage of the number of reports for the commodity for the year)

Stock Burden (Average inventory as percentage of the year's requirements)	1914	1918	1922	1924	1926	1928
I. Steel						
Less than 20	10	17	25	35	46	59
20 to 30	40	22	43	38	43	35
30 or over	50	61	32	27	11	6
II. Pig Iron						
Less than 20	....	10	30	27	46	46
20 to 30	10	....	....	27	45	36
30 to 50	40	40	50	37	....	9
50 or over	50	50	20	9	9	9
III. Nonferrous Metals						
Less than 20	14	....	....	....	11	45
20 to 30	29	29	50	50	67	33
30 or over	57	71	50	50	22	22
IV. Machinery, Wire, Hardware						
Less than 10	30	25	25	12	6	11
10 to 20	10	17	19	29	33	44
20 to 30	30	33	31	41	44	28
30 or over	30	25	25	18	17	17

III. The Burden of Stocks

Another question was asked to discover whether, with present day methods of purchasing, manufacturers carry a smaller burden of inventories than formerly. It was phrased in the following way:

What was the average inventory of your company as a percentage of the year's requirements in each of the following years?

	Commodity	*Commodity*
1914		
1918		
1922		
1924		
1926		
1928		

Through the discussion of inventories, the term stock burden will be used to refer to average inventory expressed as a percentage of the year's requirements. Where one company gave figures for more than one commodity, the data for each commodity will be considered as an individual report. Each year the number of reports of stock burden in each stock burden group was counted and expressed as a percentage of the total number of reports in that year.

There has been a marked decline in stock burden during the last ten

Table VI

Number of Reports Showing a Change in Stock Burden

(As a percentage of total number of reports for indicated commodity)

Commodity	Direction of Change	1924 Compared with 1914	1928 Compared with 1924	1928 Compared with 1914
All commodities	Decrease	50	47	64
	No change	41	44	29
	Increase	9	9	7
Steel	Decrease	50	58	58
	No change	45	36	42
	Increase	5	6	....
Pig iron	Decrease	60	46	90
	No change	40	45	10
	Increase	....	9	....
Nonferrous metals	Decrease	50	63	86
	No change	50	37	14
	Increase	....	....	....
Machinery, wire, hardware	Decrease	60	56	50
	No change	20	33	20
	Increase	20	11	30

years. Table IV shows that an increasing number of cases fall into the low burden classes as years pass.

The proportion of cases in which a stock burden of less than ten was reported more than doubled from 1914 to 1928. While in every reported year from 1914 through 1926 a stock burden of 20 to 30 is the one most commonly reported, in 1928 a stock burden of ten to 20 had become the most common. Reports of cases where stocks were 75 per cent or more of a year's requirements declined from 5 per cent of the replies in 1914 to 1 per cent in 1928. They represented a larger proportion of the total, however, in 1918 and 1922 than in 1914.

The increasing proportion of reports showing a smaller stock burden is strikingly brought out by expressing as a percentage of all the reports for the given years those showing a stock burden of less than 30 and those giving a burden of 30 or more. The result is shown in Table IV-A.

What of the stock burden of various industries? The stock burdens of certain commodities for which a sufficient number of reports were received are considered separately. They show interesting variations from the experience of all reports grouped together. (See Table V.) As will be noticed, not exactly the same classification of stock burden are used in every commodity. While half of the reports for 1914 indicate a stock burden of steel of 30 or over, there is a gradual shift until almost 60 per cent of the reports for 1928 show a stock burden of less than 30. There is a similar shift in the holdings of pig iron, about half of the reports showing a stock burden of 50 or over in 1914 and in 1918, of less than 20 in 1926 and in 1928. Stock burden of coal or oil, always 10 or more before 1922, was reported at less than 10 in about 70 per cent of the reports for 1926 and for 1928.

Have all companies lightened stock burden? Have these changes in stock burden been brought about by a great change in a small proportion of the cases, or is it true that in a large proportion of cases inventory burden has been lightened somewhat? To answer this question, the reports showing a decrease, no change, or an increase in stock burden were counted. These counts for all grouped and for eight different groups shown in Table VI.

It appears that in over 60 per cent of all the cases stock burden decreased when 1928 is compared with 1914. In nearly half of them the burden decreased when 1928 is compared with 1924. In each of the periods considered, less than 10 per cent of the reports show increased stock burden. Striking exceptions to the general change are found in the stock burdens of machinery, wire, and hardware in 1928 compared to 1914.

IV. Changes in Organization

Other questions submitted inquired concerning changes in organization for buying, and in certain buying practices not covered in the above discussion. The returns on the most important questions are tabulated below. In each case the figures are percentages of the total number of replies to the questions involved.

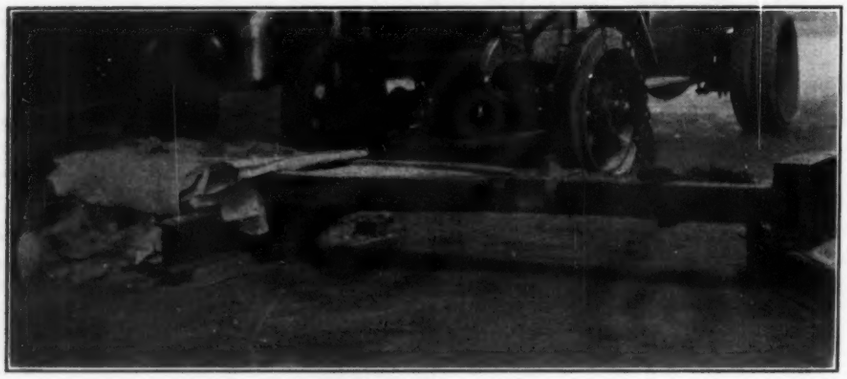
1. Has your company during the past five years installed centralized purchasing?
   Yes, 67 No, 33
2. Has your company in that period definitely improved production control in the plant?
   Yes, 92 No, 8
3. Has your company, in that period, installed a stock and purchase control system?
   Yes, 70 No, 30
4. Has it definitely improved the type of purchasing personnel?
   Yes, 83 No, 17
5. Do you make delivery within a specified time a condition of your contracts of purchase?
   Yes, 89 No, 11
6. How has your company during this period improved its methods of following up under agreements to deliver within a specified time?

A considerable variety of replies were received to this last question. Among them were the use of tickler file; employment of special follow-up clerks; quick follow-up of all delays by telephone, telegraph, or mail, or by notification of obligation to deliver, somewhat before the promised time of arrival; improved records; and efforts to obtain the co-operation of the seller.

Wallace Steel & Supply Co., Lafayette, Ind., has increased stock from 400 shares common at $100 per share by adding 200 shares preferred at $100 each.

Preheating and Welding Repairs

3-Ton Casting of Bending Brake



WITH the adoption of the oxy-acetylene process for maintenance and repair, many factories have lessened considerably losses incurred from major breakdowns. Repairs may be accomplished by either bronze welding with a high strength bronze rod or cast iron welding with a special cast-iron alloy rod. By the first method no preheating is necessary and the part may be welded in place without dismantling the machine. The second method requires the addition of some preheating of the broken part.

In repairing a large 3-ton casting, the main portion of a bending brake, the latter method was used recently. The brake was used to bend plate up to ⅜-inch thickness and due to accidental overload the main casting fractured across the top.

The casting was taken to the shop of a contract welder for repair. After lining up the casting by supporting it between two I-beams, a temporary preheating furnace was built around the break, as shown in the accompanying illustration. Charcoal was used as fuel and the heat confined by a liberal use of large asbestos sheets. Two welders alternated in the actual welding operation which was completed in about 2½ hours. The casting then was allowed to cool gradually in the dying fire.

Fig. 1—Even on heavy molds one man handles the work of each molding machine. Sand is delivered from overhead hoppers and the completed mold is carried away by gravity

Lowers Cost of Steel Castings by Improved Materials Handling

Rearranging of Plant and Installation of Modern Equipment Convert Uneconomical Foundry Into Efficient Unit

By H. R. Simonds

Associate Editor, Iron Trade Review

A CAREFULLY planned materials handling system is one of the chief factors to spell profits for a large steel foundry formerly operating in the red ink. This plant, now operated as the Eastern Steel Castings Co., Newark, N. J., was acquired by its present owners about four years ago, at which time it enjoyed a fair demand for miscellaneous steel castings, but suffered under a handicap of high manufacturing costs. Today the plant is operated at a profit and many changes have contributed to this decrease in cost of production.

Many of these changes have had to do with better and cheaper methods of handling and transporting materials. In some departments of the plant the production costs have been reduced as much as 25 per cent. The new management found a poorly arranged plant with material in process traveling back and forth needlessly and most of the handling done actually by hand.

Arrangement Proved Unhandy

The plan of the foundry was U-shaped. The main central room was used as an open-hearth department, casting shop and cleaning room and was served by cranes. At each end of this room were large wings, the left one containing the core department, the electric furnace and molding room, and the right wing housing the cleaning and shipping department for the electric steel castings. With the exception of two relatively small doors, the left wing was separated from the main room by a brick wall. In this isolated wing the molding floor for the electric furnace was located. It was not served by cranes.

While an unhandy arrangement of the plant was at once apparent, the new manager soon found that the general practice was inefficient. This will be illustrated by an incident which happened soon after he took over the work of modernization. He

noticed that the molders went after their own cores, their patterns and even their flasks, instead of having these brought to them in the usual manner. He asked the foreman why the cores were not delivered to the molders, and the foreman's reply was that the workmen needed the change and rest which they got from walking about to collect the sundries mentioned. He added, "If we supply them with cores, they are going to take time to rest just the same and while they're resting they might as well get their cores."

After this incident the new manager decided not only that the physical part of the plant needed changing, but that a whole new system of operation would have to be followed. Accordingly, he worked out a careful plan of procedure. This may be divided in a general way under two main headings:

(1) Rearrangement of departments and new equipment.

(2) Planning control and piece work pay.

Classification Proves Difficult

Of course it is difficult to classify the many changes called for in the rehabilitation of an old plant under any two divisions, and some idea of the diversified features considered may be had from the following list: time study; control and research laboratory; five day week; duplexing with an open-hearth and an electric furnace; bonus system; heading and gating committee; one grade of sand.

As in most every other case of plant modernization, the problem of economy had to be considered. Features of the old plant had to be retained as much as possible, and production during these changes could not be interrupted. In attempting to establish a progressive flow of material from one side of the plant to the other, the manager's first thought was how to get all the raw material started at any one point.

The open-hearth furnace was at the center of the plant, and the electric furnace as mentioned was in the left wing. The cost of moving either furnace seemed prohibitive. While studying this problem he recalled having heard of some plants where duplexing had proved successful. Accordingly he visited these plants and after considerable study decided to use his open-hearth furnace as a melting unit and to refine the steel in the electric furnace.

This gave him his starting point for metal at one side instead of at the center and was in fact a feature which determined many of the subsequent alterations. To get the metal from the open-hearth furnace to the electric furnace, he tore down the separating wall and extended the crane runway across the left wing. This apparently simple expedient of tearing down a wall proved to be an inspiration in the work of improvement. Not only did this at once give better lighting throughout the whole central part of the plant, but it opened the way for freedom in arrangement of conveyors and equipment which had been blocked by the existence of the wall. His advice to others facing the problem of modernizing an old plant is to tear out at once all inner walls not needed to support the roof. This advice might have to be modified in the case of storage bins, but even in that case bins not extending to the roof are preferable to those with extremely high sides.

Coreroom Is Re-equipped

With the source of steel arranged for the left wing, the sand conditioning equipment and sand storage were placed in the left wing. The coreroom was left about where it had been near the upper end of the left part of the U. However, the core oven which had been almost in the center of the left wing was moved out of the way to one side of the building. The coreroom itself was completely reorganized and was equipped with modern core benches and core making machines to decrease the cost of production.

Realizing the importance of sand both in its relation to quality of work and expense, the new management gave special study to its sand sys-

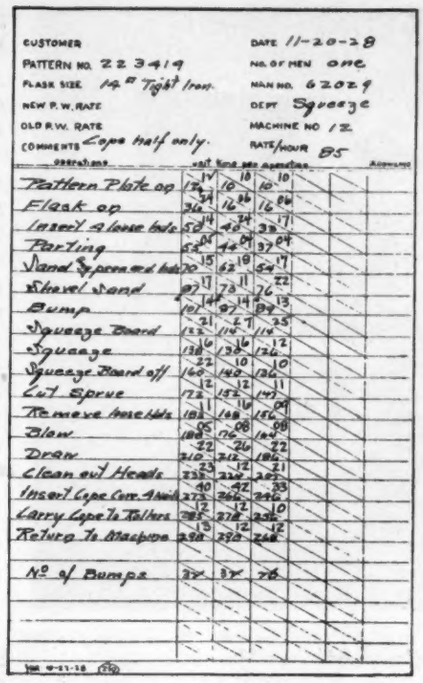
Fig. 2—A special chain sling with pulleys permits ease in handling flasks and closing molds

tem. From the vibrating shake-out, the castings continue on in their travel to the cleaning department. The empty flasks are returned by conveyors to the flask storage department and the sand drops through a grating upon a belt conveyor which carries it past a magnetic separator to a vibrating screen and then to a dust extractor before it goes to the storage bin for reused sand. After mixing in proper proportion with new sand and bond, it is fed on to a belt conveyor which in turn delivers it to an elevator where it passes to the sand mills. After milling and conditioning, the sand is carried by overhead belt conveyors to the sand hoppers which serve all molding machines.

Sand Moisture Controlled

The moisture content of the sand is automatically controlled and a humidity indicator located at the point where the conditioned sand goes on to the last conveyor belt is electrically connected with the laboratory, giving a direct and continuous reading on a dial. By this means the laboratory attendant can check with the automatic control. In addition samples of the sand are taken and tested every hour for strength and other properties. The moisture content is held within a quarter of one per cent of the specified value which is slightly less than three per cent of the sand by weight. One innovation in the sand system which has been highly successful is the elimination of backing sand. Under the new scheme one grade only is used. This is a uniformly conditioned facing sand.

By giving careful attention to the sand department not only have casting losses been reduced, but the amount of new sand used has been reduced from an average of 2000 pounds per ton of castings with the old plant to 400 pounds per ton of castings with the new. The complete sand cycle requires but four men to operate it, including maintenance of the conveyor system.


CUSTOMER — DATE 11-20-28
PATTERN NO. 22 3414 — No. OF MEN one
FLASK SIZE 14" Tight Iron — MAN NO. 62029
NEW P. W. RATE — DEPT Squeeze
OLD P. W. RATE — MACHINE NO 12
COMMENTS Cope half only. — RATE/HOUR 85

Operations	unit time per operation				Accounted
Pattern Plate up	14	18	18	10	
Flask up	34	16	16	16	
Insert & loose bolts	58	34	46	33	
Parting	54	44	54	37	
Sand & spread bd	70	15	63	19	54
Shovel stand	87	17	73	11	76
Bump	101	14	87	14	89
Squeeze Board	132	31	118	29	118
Squeeze	138	6	130	16	126
Squeeze Board off	160	22	140	10	136
Cut Sprue	172	12	152	12	147
Remove Loose bds	183	11	168	16	156
Blow	189	6	176	8	164
Draw	210	21	202	26	184
Clean out Heads	233	23	228	26	205
Insert Cope Core & bds	273	40	244	42	246
Carry Cope To Tables	285	12	278	12	256
Return To Machine	298	13	290	12	268
No of Bumps	3	3	3	3	

Fig. 4—A simple time study card gives full data necessary in computing rates and setting prices for piecework pay

Roller Conveyors Employed

With the exception of the core department roller conveyors have been installed throughout the entire plant for handling nearly all the material. These conveyors have been standardized as much as possible and have been made up in sections so that they may be switched from one location to another until the best arrangement has been secured. These conveyors in general are placed 12 inches above the floor level. They handle the molds from the molding machines to cross conveyors for pouring and then on to the shakeout. From the shakeout, roller conveyors continue to transport the castings, always in the same general direction, on through the various phases of inspection and cleaning to the shipping department which occupies a large space at the right.

To use roller conveyors for the green molds, it is necessary to build them along the lines of a precision machine so that there will be no wobbling or vibration transmitted to the

Fig. 3—Molds are poured on the conveyors, the metal being delivered in ladles carried on overhead trolleys

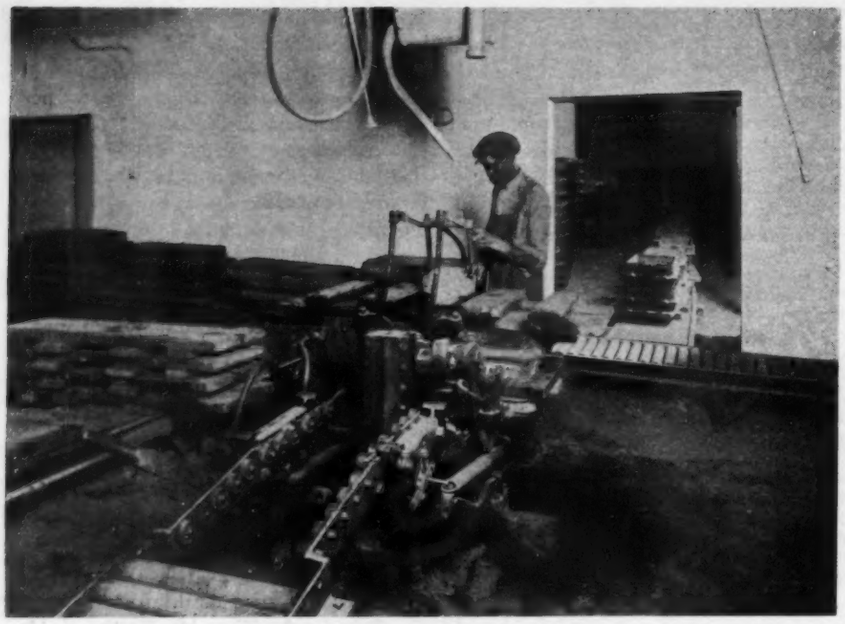


Fig. 5—Gravity conveyors bring flasks and bottom boards to molding stations and carry away the finished molds

molds. This difficult problem has been solved by the Eastern Steel Castings Co. The precision feature has been secured by the use of heavy angle supports, machine drilled to an accurate center line to take the roller shafts. The rollers and bearings all are designed to insure that all rollers have their top or bearing surfaces in one plane and that each roller is concentrically mounted so that its bearing surface remains in this plane.

Molds Handled Rapidly

The conveyors extending out from the molding machines are of sufficient length to give ample storage space. As a rule, the molds are closed at the far end of such branch conveyor lines permitting flexibility in the number of operators and in the time used for different operations. Fig. 5 illustrates a typical layout of conveyor and molding machine. In this case the copes are made on one machine which has its own branch conveyor and the drags are made on an adjacent machine served by a parallel conveyor. The molds are closed at the lower end of these conveyors by the special chain and pulley closing mechanism illustrated in Fig. 2. Under this general plan two men are able to pick up the copes and place them on the adjacent drags at the rate of 35 molds per hour.

A feature of the application of the conveyor to the molding machine is that the rollers extend in under the work so that the molder merely drops a lever after the mold has been jolted and without any lifting or pushing on his part the completed mold moves off on the conveyor. Roller conveyors in many other installations are brought up to molding machines and stopped short of the rollover table which means that for heavy work two men are required to lift the molds off the machine on to the conveyor however close it may be.

Only Electric Steel Made

The entire production of the foundry is now electric steel, the open-hearth work having been switched to electric steel at the time the duplexing operation was established. The castings range in size from less than a pound to more than 6 tons and include such work as motor frames, gears, gear blanks, headers for oil stills, automotive castings, railroad castings, steel valves and fittings, hydraulic pressure cylinders and mooring posts.

The electric furnace is the 3-phase arc type, rated by the manufacturers at 1½ tons per hour. Under the present system this same furnace refines about 12,000 pounds per heat, or with two shifts and figuring on a 55 per cent yield, 180 tons of finished castings a week.

The usual charge of scrap, pig iron and sprue is fed into the open-hearth furnace and after melting is tapped

Fig. 6—Tote boxes carry the castings to the heat treating furnaces and thence to the shipping department

into a large crane ladle and carried through to be used as a charge for the electric furnace. The net result of this duplexing operation is an improved quality of castings for the general run of the plant, a greater capacity in electric steel with no additional equipment, and lower costs.

One Melter Required

These lower costs are made possible through many incidental changes. As the open-hearth furnace is now used merely as a melting unit, only one expert melter is required, his work being confined to the electric furnace. Heretofore it was necessary to have a melter at each furnace. The working hours on the furnace have been greatly shortened. The melting of scrap and pig iron in an electric furnace from the cold state is a slow process and many devices have been adopted by foundrymen to offset part of this difficulty. Such methods include pre-heating outside of the furnace, pre-heating inside of the furnace, and the introduction of oil jets during the first part of the electric melting. The Eastern Steel Castings Co. believes that an open-hearth furnace used as the initial melting unit gives the best results. This opinion must be tempered a little by the fact that the management found the plant equipped with an open-hearth furnace in good working order and consequently was ready to do melting in that manner.

Second only to the physical aspect of a plant comes the planning department in the mind of the management. This planning department at the Eastern Steel Castings Co. covers time study work, routing and scheduling and the pay of workers. The operation of the department is highly complicated and only a brief outline can be given here.

After having passed through the preliminary stage of estimating and quoting, incoming orders go to the planning department for first attention. From the customer's order a work order is made out with four or five copies and one copy is sent to each of the different departments concerned. These copies serve as production guides. One copy for instance goes to the core department and from it the coreroom foreman knows what cores will be required during the production of the order. Another copy goes to the pattern maker and is a notice to him to furnish certain patterns and core boxes. Other copies go to other foremen in like manner. The work order also establishes a definite schedule for each process throughout the plant and in combination with progress reports from the various foremen enable the manager to check up each phase as to actual performance in relation to the schedule.

The subject of time study is a bugbear to some foundries and many methods have been devised for determining in advance the labor cost on new work. The form shown in Fig. 4 illustrates the method of study adopted by Eastern Steel Castings Co.

The notations on the left are the different operations called for in making up the cope half only of pattern No. 223419. The three columns to the right of this list of operations are the three tests made as a time study of the job. In each column the left hand figures are cumulative, each one representing a point caught by the stop watch. The right hand figures in each column are secured by subtracting any one item from its succeeding item and they thus give values for each single operation.

This is the crux of the whole scheme. Time values for each operation taken during the sequence of all operations are then compared with standards already set up for these operations and after checking with similar time values obtained in the other tests shown on the card, new values are set for each operation. These new values when totaled give the time allowance for the job. The method breaks down total time into operation time and in this way helps establish certain standards which are common to many jobs. Eventually these standards make it possible to estimate accurately nearly all new work without making actual tests.

E. F. Miltenberger, vice president and general manager has been largely responsible for revamping and organizing the practice at the plant of the Eastern Steel Castings Co.

Coal Stocks Ample and Exports Larger

Commercial stocks of bituminous coal used largely for industrial purposes amounted to 33,100,000 tons July 1, 1929, compared with 41,700,000 tons July 1, 1928, and 36,900,000 tons April 1 this year, according to a survey just completed by the United States bureau of mines, department of commerce.

Exports during second quarter of 1929 averaged 342,000 tons a week, against 226,000 tons in the previous quarter and 270,000 tons during the same period of last year. The weekly rate of home consumption during the second quarter shows the usual seasonal decline following the close of the heating season and amounted to 8,651,000 tons a week, compared with 11,308,000 tons in the first three months of 1929. Compared with the corresponding quarter of last year, however, the current rate of home consumption shows an increase of 4.1 per cent, reflecting somewhat improved business conditions which have prevailed in the present year.

In addition to stocks in the hands of consumers 6,629,262 tons of bituminous coal were on hand on Lake Superior and Lake Michigan docks July 1, 1929, compared with 3,648,280 tons at the beginning of the previous quarter.

Stocks of domestic anthracite held by the coal merchants reporting show the usual seasonal increase over the amount in storage April 1 and are slightly higher than on corresponding dates in other recent years.

Mining Machinery Sales Show Good Gain

Foreign sales of mining and quarrying machinery totaled nearly $8,400,000, during the first six months of 1929 and exceeded those for the corresponding period of the previous year by 22 per cent, according to L. J. Cochrane, industrial machinery division, department of commerce.

Since 1926 Canada has been the best customer for American mining machinery. Mexico ranks second and South Africa and Russia have been increasingly great markets.

In line with the general increase in mining and quarrying activities throughout the world, foreign sales of American mining and quarrying machinery have shown a general upward tendency during the past few years.

During 1928 exports of these items totaled over $14,000,000, exceeding the volume attained in 1927 by more than 6 per cent and showing a substantial gain over 1925, when exports totaled approximately $10,500,000. Figures for 1928 show a decline under 1926, when heavy buying by Canada, Mexico, Chile and several lesser markets raised the year's business in this line to over $14,800,000. However, with continued favorable developments in many of the world's leading mining fields, it is expected that business for 1929 will show a distinct gain over the preceding year.

Department of commerce is distributing the summary report on the simplification conference on dental hypodermic needles, held at White Sulphur Springs, W. Va., June 17.

Die Casting Dies Require High-Grade Steel and Heat Treatment

High Temperatures and Pressures Produce Surface Cracks in Mold and Affect Quality of Casting

By J. B. Nealey

CASTING of metals, especially low-temperature alloys, in permanent metal molds is a rapidly expanding industry and one that will continue to gain in volume as improvements in the die metals are made so that the dies will stand up under higher temperature alloys. At the present time 1400 degrees Fahr. is about the limit of die casting alloys under pressure, for the dies will deteriorate rapidly, if used with anything running at higher temperatures.

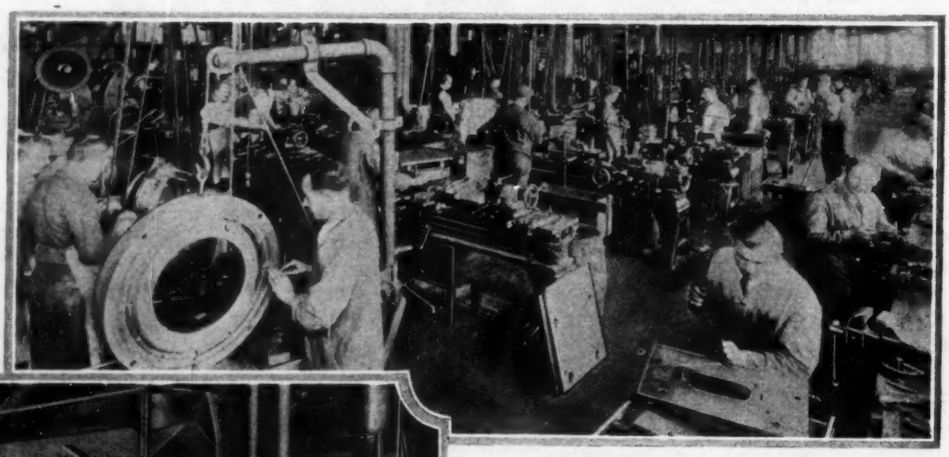
For instance, the melting point of copper, brass, etc., runs about 2100 degrees Fahr., and it would not be practical to confine these metals at this temperature under pressure in present day dies as the dies would go to pieces. Pressure is a big factor here for the hot metal is forced into the dies at pressures ranging as high as 600 pounds per square inch.

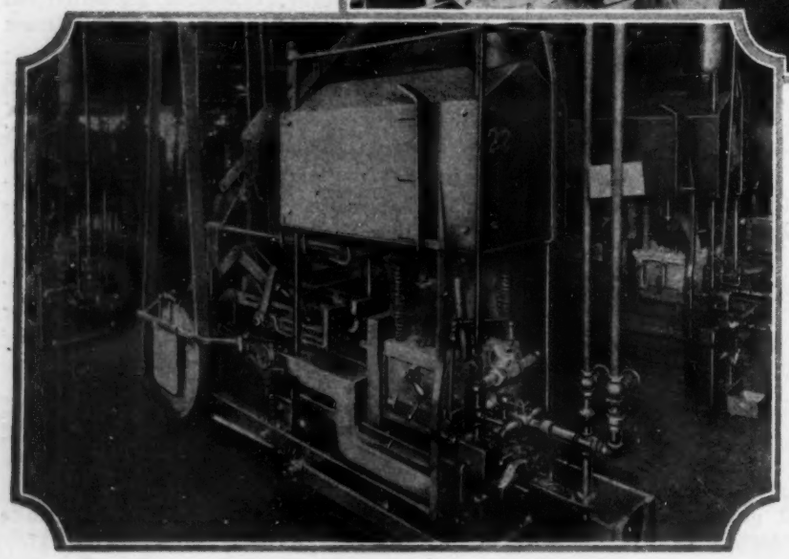
Uses Different Alloy Bases

One of the largest die casters in the country is the Alemite Die Casting & Mfg. Co. with plants in Chicago and Woodstock, Ill. This company uses alloys of four different metal bases as follows: Aluminum-base, zinc-base, tin-base, and lead-base. The brass and bronze alloys have not as yet been commercially cast under pressure although they are cast in permanent holds at atmospheric pressure. However, for economy, volume production, minimization of machining, sharp definition of outlines, close grain structure, and the making of intricate shapes, casting under pressure is necessary.

Among the best known aluminum-base alloys is that containing 92 per cent aluminum and 8 per cent copper, which also is used extensively for most aluminum sand castings. An aluminum-base alloy containing a small quantity of silicon, with a melting point of 1150 degrees Fahr. has a tensile strength of 20,000 pounds per square inch.

A die casting alloy that compares favorably with cast iron in physical qualities is a zinc-base alloy containing zinc, tin and copper. This alloy has a tensile strength of 18,000 pounds per square inch, an elongation of 1 per cent in 2 inches, a brinell hardness of 52 and melts at 825 degrees Fahr. It also can be plated and





(Right)—Tool and die department where the intricate dies for the die casting machines are made. (Below)—A view in the die casting department showing one of the casting machines. A gas-fired melting pot is employed.

In the trimming department bandsaws are used for cutting off sprues and risers, while drill presses and special machines are provided to tap the cavities and holes

weighs only about a quarter of a pound per square inch. Another alloy of the same base with aluminum instead of tin has a tensile strength of 40,000 pounds per square inch, an elongation of 2 per cent in 2 inches, a brinell of 75 and melts at 800 degrees Fahr. This alloy can be plated, weighs about the same as the other and its physical characteristics compare favorably with those of malleable iron.

Offer Range of Mixtures

The tin and lead-base alloys offer an extensive range of various type mixtures varying from cheaper antimonial-lead alloys to the high-speed tin-base babbitts. These alloys usually melt at around 400 degrees Fahr., but much higher or lower melting points can be secured by varying the mixtures.

The Alemite Die Casting & Mfg. Co. is widely known for its automobile, pressure greasing units which part of its business it sold out some time ago. It is still better known for the die castings it makes for a wide diversity of industries of which the automotive stands first. The company was started some 16 years ago and its present volume of business can be gaged partially by the fact it has more than 2000 active dies.

Its Chicago plant has 75,000 square feet of floor space while the one in Woodstock contains 150,000 square feet. This latter plant is being fitted up for the manufacture of a full line of cast aluminum cooking utensils, which line is already in production at the Chicago plant. A special alloy, containing no ingredients injurious to the health, has been developed by the research department of this concern for these utensils.

In designing these utensils the metal body was made much thicker than anything similar now on the market. This affords the following advantages—retains heat longer, more uniform distribution of heat, less chance of burning food, and gives longer life. The handles are made of material which will not conduct heat.

All of the die casting machines used in this concern were developed, designed and built in a specially equipped machine shop at the Chicago plant. The type of machine used consists of a tank or reservoir containing the molten metal, a die just above the goose neck and a machine for operating the die and goose neck.

In operation the goose neck is submerged in the reservoir, filled with molten alloy and the nozzle end raised until it is pressed against the bottom of the die, the opening of the goose neck lining up with the opening in the die block. Air under pressure is then forced in at the other end of the goose neck and the hot metal forced up into the die. The die is then moved back, pulled apart and the casting dropped out. These dies are water cooled and in some of the larger machines the two parts are pressed together with a pressure of from 45 to 55 tons.

Rate of Production High

A hood drops around the machine as the metal is forced into the die. All of these operations are automatic and are performed in a fraction of a second at the touch of a button by the operator. One machine will produce close to a ton of castings in a 9-hour day, and one die is good for from 10,000 to 200,000 castings. The reservoir is of steel, setting on a brick foundation enclosing a combustion chamber in which are six gas burners. Fresh metal is added from time to time.

There are 35 of these machines in the die casting department and the reservoir capacity of each is approximately 1500 pounds. Some castings require a large number of steel or brass inserts or cores put in at all angles. In some cases it requires as high as 20 tons pressure to pull these cores and yet they must be held in place and pulled automatically with the opening of the die.

Cores Easily Inserted

This company has developed two ways of holding and pulling these cores, one requiring a fixture and the other working without a fixture. In the latter case the die is so prepared that the operator can easily insert the cores by hand. Occasionally, as many as 25 or 30 cores are used in a single casting.

The method of gating is of great importance because, due to the very high pressures used, the time occupied in filling the die cavity hardly can be measured in fractions of a second. For this reason it is necessary to so design the gate that the metal will flow freely and with no restriction and the least possible friction. It is also essential to so vent the dies that the air can quickly escape, but in such a manner that the metal cannot follow.

The air vents in the dies made at the plant are wide, but very shallow which allows the air to escape at the proper speed but causes the metal to freeze upon entering, thereby preventing the flow of any more metal. There has been developed here also a chemical which is washed on the face of the die to prevent a too rapid cooling of the metal when it strikes the sur-

face of the die. This chemical forms an iron oxide which sufficiently retards the chilling action of the cold die.

Served with Hot Metal

The die casting machines are served with hot metal direct from the metal alloying department. Here are located 15 gas furnaces built of firebrick enclosing oval or round pots. Each pot has a capacity of 3 tons and is heated with 10 gas burners. The pots are cast from an acid and heat-resisting alloy developed by the research department. The molten metal is moved from these furnaces to the die casting machine in pots on trucks as needed and the rest pigged for storage.

Large groups of band saws are used in cutting off the sprues and gates. Drill presses and special machines are used in tapping cavities and holes. While it is possible to cast external threads, owing to the fact that the metal shrinks more than the die and, therefore, freezes upon it, internal threads are rarely, if ever, cast. There are also long lines of burnishing and polishing machines, but the machining of these castings is so minimized that few machines are required for this purpose.

In addition to the die casting and metal alloying departments at this plant there are also the laboratory and research departments, tool and diemaking shop, trimming and machining, polishing and plating, packing and shipping and extensive machine shop in which all the machines used are built. For plating practically all platable metals are used here and recently a large chromium plating installation has been made. The tanks in this installation are all heated with gas.

One of the most important details in the making of the dies is the heat treatment given them to develop the physical properties so necessary in this kind of work. Unless a high grade of steel is used for the dies, and unless the heat treatment is properly handled, the surface will crack after several thousand castings have been made, and will produce a rough, streaky product. In this process gas fuel is used.

Rail Fatigue Failure Not Caused by Traffic

As the result of extended tests on rails subjected to heavy service conditions, the United States bureau of standards has concluded that the steel in these rails had not been subjected to stresses greater than its endurance limit, and that fatigue failures in service arise from pre-existent nuclei.

This investigation is in line with the policy followed by the bureau for many years of co-operating with railroads and manufacturers in problems relating to the betterment of railway equipment, with particular reference to improving the safety of travel.

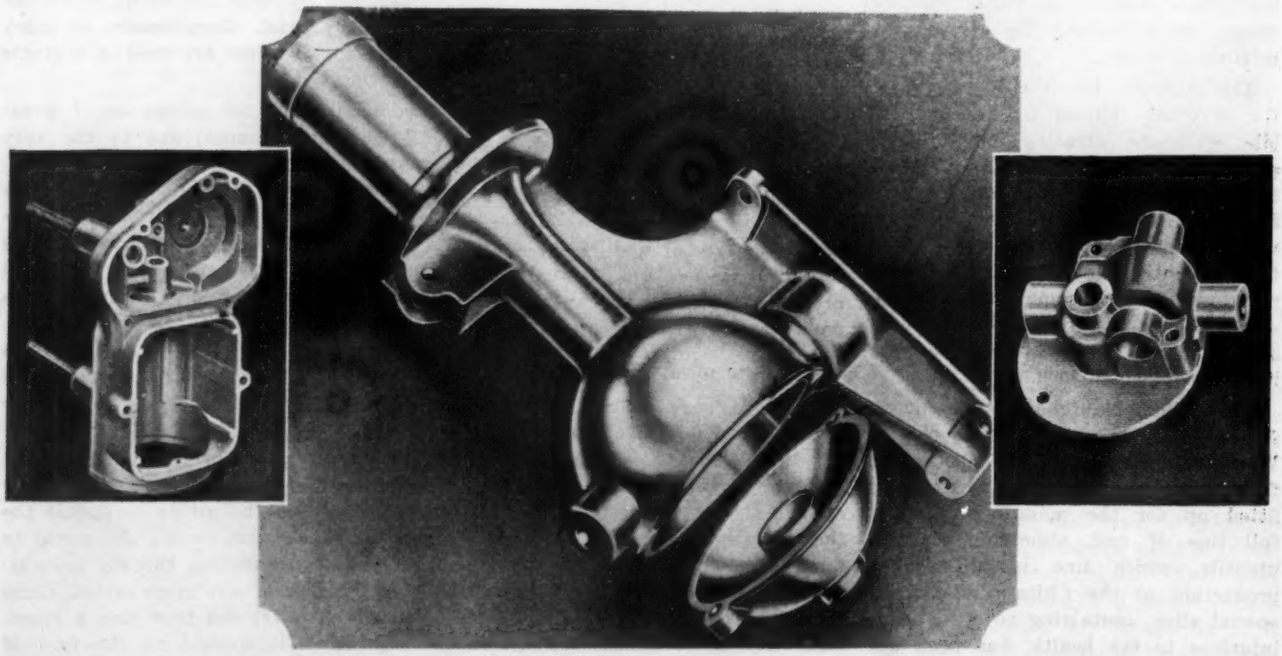
It has long been recognized that the so-called transverse fissures type of rail failure was of the fatigue type, the result of the repeated stressing of the rail by the passage of trains. The failure always spreads from a well defined nucleus in the interior of the head of the rail. The origin of this nucleus has never been definitely established. It is thought by some investigators to be present in the rail before placing in service, but by others to originate in service due to excessive wheel loads.

Through the co-operation of the Baltimore & Ohio and the Canadian Pacific railroads, rails from the same heats previously tested were taken out of track and returned to the bureau after having been subjected in some cases to cover 20,000,000 tons of traffic in about one and a half to two years' service.

A redetermination of the endurance limits showed that the stress imposed in service has not affected the endurance properties of the steel, the endurance limits being practically the same after as before service.

Offers Graduate Courses

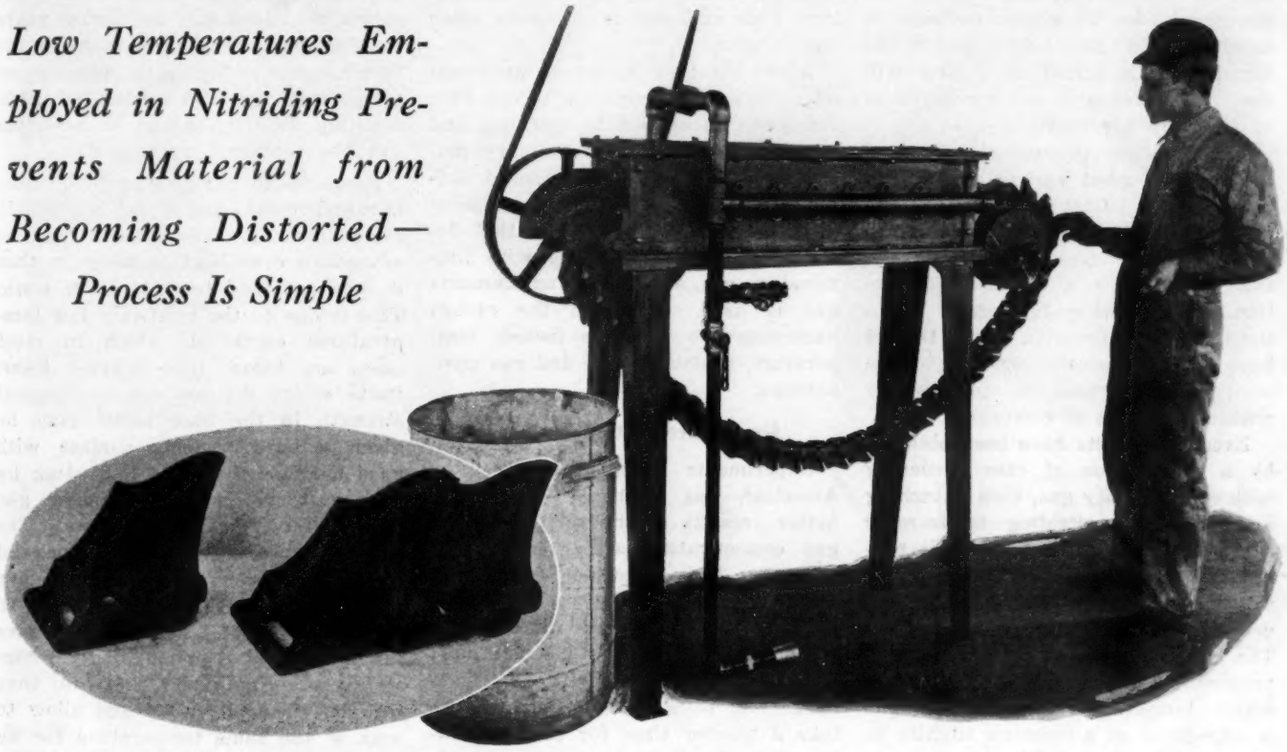
A graduate bulletin and a pamphlet outlining the evening graduate courses have been issued by the Polytechnic Institute of Brooklyn, New York. These courses may be pursued either during day hours or in the evening. The graduate courses are intended for those who desire special proficiency in certain fields of science and technology. Information regarding the curricula will be furnished on request.



Examples of the intricate castings which are made by forcing hot metal into permanent molds under pressure. The small casting at the extreme left is a windshield wiper body and the one at the extreme right is a gasoline gage part

Hardening Steel in Ammonia Gas

Low Temperatures Employed in Nitriding Prevents Material from Becoming Distorted—Process Is Simple



Low-carbon sheet steel fan blades to be hardened are inserted between spacers on an endless chain and are passed through the nitriding machine. The endless chain is made up of silicon steel links as shown in the inset at the left

ANY ordinary steel may be case hardened and protected against corrosion by subjecting it to ammonia gas under the proper conditions of time, temperature and pressure. The process, known as nitriding, has come into prominence recently in connection with the exacting demands of the airplane industry and some companies have developed alloy steels which give special hardening action when nitrided.

For a deep and glass-hard case a special steel undoubtedly is desirable but there is a surprisingly large field of application of nitriding to the general run of machinery steel products and to iron castings. While the process is relatively simple, steels of different analyses require different conditions in the application of the ammonia gas. It is not difficult to run a series of nitriding experiments with any given steel specimen to determine the temperature, pressure and gas concentration best suited to give desired results.

The American Gas Furnace Co., Elizabeth, N. J., for many years has been a manufacturer of furnaces for the heat treating of steel and other metals, and as heat treating and case hardening are closely associated in many processes it was only natural that the line should be expanded to include case hardening furnaces and carburizing machines. Research work for customers to determine the design of furnaces best suited to given conditions, led to the establishment of a research service department and eventually to the organization of a subsidiary company known as the American Metal Treatment Co., Elizabeth, N. J. This subsidiary does job heat treating and case hardening in cases where the quantity of work does not warrant the purchase of a furnace.

Nitriding Machinery Steel

The surface hardening of ordinary grades of steel by exposure to ammonia gas is part of the regular routine at the plant of the American Metal Treatment Co. One of the items treated by the company is a sheet steel fan used in a city gas blower. The action of the gas on ordinary steel causes corrosion in a short space of time, but the life of the blades is greatly prolonged by giving the steel a thin case with ammonia gas. The blades are assembled in the blower by means of bolts placed in the central portion. It is therefore desirable to stop off the case around this central portion to facilitate drilling of the holes.

The method of procedure is ingenious though simple, and is shown in the accompanying illustration. Low-carbon sheet steel fan blades are inserted between spacers on an endless chain, as the chain travels over a pulley at the operator's end of the machine. The design is such that relatively short radius of the pulley opens up the link spacers permitting easy insertion of the blades. The movement of the chain into the furnace tightly clamps the blades between the spacers and in this way permits nitriding of the exposed parts only. At the discharge end of the furnace the chain links again open up as they travel around a second pulley, and the nitrided blades then drop into a container. The silicon steel cast links which make up the endless chain also are shown in the illustration.

Within the furnace the exposed portions are subjected to anhydrous am-

monia gas at approximately 1100 degrees Fahr. and at a pressure of approximately 2 pounds. An extremely thin case has been found sufficient to resist rusting and oxidation. With other conditions equal, the depth of the case varies with the time of exposure. Under the above conditions it has been found that blades held in the furnace for a period of 1 hour will show an increase in surface hardness of about 75 per cent.

The nitriding process also is used to protect a great variety of products against rust. Cast iron pump parts including the casing and the cams are treated much as described for the fan blades with a resultant protection against rust under service conditions. Small firearms thus treated have been purposely exposed to the weather throughout a full winter without any sign of corrosion.

Excellent results have been obtained by a combination of case hardening with ordinary city gas, then quenching and afterward nitriding to increase resistance to corrosion. For this procedure the parts are placed in a rotating furnace externally heated and provided with gas intakes and outlets. The temperature is brought up to approximately 1650 degrees Fahr. at which temperature illuminating gas is introduced at a pressure slightly in excess of 1 pound. An open exhaust tap keeps the gas in constant circulation so that fresh gas with its fresh carbon content is always coming in contact with the work. The pressure within the furnace is maintained by having the gas intake considerably larger than the exhaust. As the furnace slowly revolves the work tumbles over and over permitting the gas to reach all crevices. While most city gas is suitable for this treatment precautions must be taken to insure its being practically free of sulphur. Natural gas has been found excellent and many specially prepared high-carbon gases are now being used for case hardening.

How Hardening Takes Place

The actual hardening takes place along exactly similar lines to the usual practice with pulverized bone charcoal or other carbon material. The action when solid material is used comes from the gases which such material generates at high temperatures. These gases carry the carbon to the surface of the work to be hardened, but the amount of carbon in the charge is fixed with the amount of solid material, and cannot be increased as the process continues with the ease that it can in the case where gas is the carbonizing agent. Also it has been found that gas under pressure will reach pockets and concealed surfaces not reached in the charcoal case hardening methods.

Engine cylinders of small bore have been found to have a deeper case at the top than at the bottom of the cylinder under charcoal case hardening. This difficulty is overcome when gas is used.

After the case hardened specimens have been heat treated, a second case frequently is applied by nitriding and by this second process ordinary machinery steel has been hardened sufficiently to scratch glass. The nitriding process is exactly similar to that described for case hardening with illuminating gas, except that an ammonia gas is used. As with the carbon hardening the variables include temperature, pressure, time and gas composition.

Gas Concentration Is Low

Experiments conducted by the American Gas Furnace Co. indicate better results with relatively low gas concentration and greater time element. This gives a closer knit structure between the case and the base metal. No definite rules can be given, however, because practice must necessarily change with different classes of work. Small light pieces take a shorter time for case hardening than heavier pieces. The large variation in treatment may be judged from the fact that some small parts are nitrided in 20 minutes while certain large pieces require 6 to 8 hours. It has been found advisable to let the work soak for a while after the source of gas has been shut off, keeping the temperature constant. During such soaking the base metal absorbs some of the nitrogen from the case and a sharp line of demarkation between one and the other is avoided.

The nitriding process as practiced by the American Gas Furnace Co. is said to have been developed by accident some 14 or 15 years ago by A. W. Machlet who now heads the company. In an attempt to account for variations in results when case hardening with city gas he analyzed the gas and found it contained sulphur. To rid the gas of this sulphur he passed it through ammonia water and soon noticed a different effect on the specimens which he was hardening. The surface had a new appearance and took a different kind of polish which was at once discernible Curious as to this new effect, he increased the strength of the ammonia and finally introduced pure ammonia with the gas.

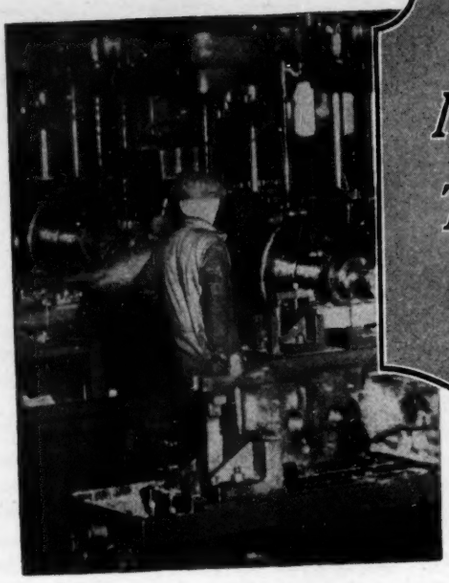
Analysis of the case hardened samples under this process showed that the steel had been nitrided. He found that the effect of the ammonia was increased by having some carbon mixed with it. However, he soon discarded the mixture of city gas and ammonia and instead passed pure ammonia through a paraffin solution and found in this way he obtained a gas best suited to nitriding. In recent years the company has changed many of the variables, but the basic process of giving steel and iron a hard and rust-resisting case by means of ammonia gas has remained unchanged.

Parts where nitriding could be used advantageously are found in nearly every industry. The process has the advantage over heat treating in that it does not tend to distort the work. This is due to the relatively low temperatures employed, which in most cases are below 1000 degrees Fahr. Parts which do not require unusual strength in the base metal may be given a hard wearing surface with good average resistance to rusting by putting them in the ammonia gas furnace for from 1 to 3 hours. The general procedure is to machine and polish the parts completely and then place them in a rotating furnace, turn on the supply of ammonia gas, leave for the prescribed period with gas constantly entering under pressure, then turn off the gas supply and allow to soak at the same temperature for an additional period. Average practice on relatively small work would be 2 hours in contact with the gas supply and 1 hour soaking. This process is being used successfully on gears, cylinders, spindles, pump parts, dies and spinning rings.

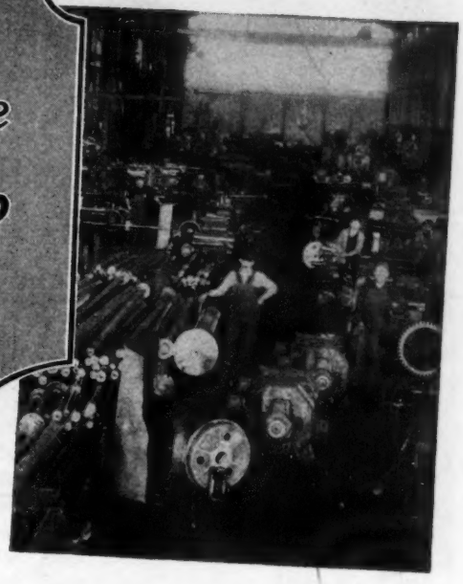
Seek a Higher Standard of Construction

A higher standard of building construction in Indiana is the aim of a movement launched recently by the Indiana Structural Steel Board of Trade, of which J. L. Kimbrough, Muncie, is president. The organization will promote proper fabrication and design of steel entering into the construction of public and private buildings.

In accordance with a resolution adopted at the meeting of the steel board of trade recently, officers of the organization will establish contact with building inspectors in all cities of the state, providing them with copies of the state laws covering the character and use of structural steel in buildings, also the standard specifications of the American Institute of Steel Construction Inc., and the standard code of practice of that organization.



New Machine Tools and Shop Equipment



"Without tools man is nothing, with tools he is all."—Carlyle

Expositions Forecast New Trends

WITH the advent of convention season eyes of machine tool designers, builders, dealers, buyers and users are turned with one accord to new developments in the industry. How are the machine tools of tomorrow being built? What will they do that present machines will not? What are the newest methods of paring production costs?

The first of the 1929 shows is that of the American Society for Steel Treating, the National Metal exposition, in Cleveland public auditorium, Sept. 9-13. Some 230 manufacturers including a few making metalworking equipment will display their products in this exhibition conducted in conjunction with the National Metal Congress.

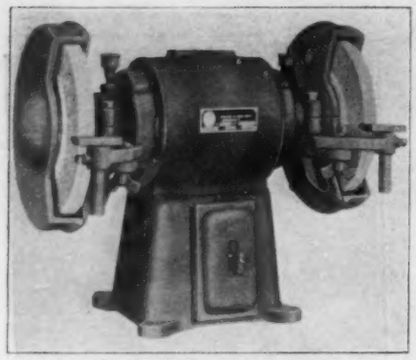
The second exposition will be the National Machine Tool Builders' exposition sponsored by the National Machine Tool Builders' association. This also will be held in Cleveland public auditorium, beginning Sept. 30 and ending Oct. 4. At this exposition approximately 250 machine tool builders and others connected with the machine tool industry will have exhibits.

When the new tungsten carbide cutting tool alloys were introduced in this country about one year ago it was seen readily that these materials would require sweeping changes to be made in the design of machines if full advantage was to be taken of the greatly increased cutting speeds and feeds. As was expected, machines now are being built with increased rigidity, improved bearings, and embodying a wider use of alloy steels. The popularity of and demand for the alloy steels is a development which now is young and one which undoubtedly will expand in the future. Steels containing nickel, chromium, vanadium, tungsten,

(*Concluded on Page* 602)

Iron Trade Review's Calendar of New Equipment

Item	Comment	Builder	No.	Date Described	Page
Switch mechanism	Drum switch operating mechanism for use in crane cabs	General Electric Co.	167	Aug. 8	331
Cleaner	Air motor driving rotating wire brush; portable	Paasche Airbrush Co.	168	Aug. 8	331
Grinder	Electric bench type; 6-inch wheels; ball bearings	Millers Falls Co.	169	Aug. 8	331
Switch	Field discharge switch for use with magnetic chucks	Taft-Pierce Mfg. Co.	170	Aug. 15	398
Resistor	For use in resistance banks; rustproof and noncorrodible	Cutler-Hammer Inc.	171	Aug. 15	398
Welding machines	Power-driven vertical welder and double-roller seam welder	Thomson Electric Welding Co.	172	Aug. 15	399
Furnace	Continuous heat treating mesh-belt conveyor type	General Electric Co.	173	Aug. 15	399
Bearings	Single-row radial type; solid rollers	Hyatt Roller Bearing Co.	174	Aug. 22	457
Furnace	Designed for heat treating aluminum alloys	General Electric Co.	175	Aug. 22	457
Bucket	Clamshell type; increased speed and power	Erie Steel Construction Co.	176	Aug. 22	458
Presses	Single-crank power presses; 32 and 56-ton capacities	Niagara Machine & Tool Works	177	Aug. 22	458
Cam grinder	Semiautomatic and hydraulic features incorporated	Landis Tool Co.	178	Aug. 29	529
Welder	Gas-engine driven; 200-ampere capacity	Lincoln Electric Co.	179	Aug. 29	530
Tongs	Entirely automatic; for handling blocks, slabs, etc.	Heppenstall Forge & Knife Co.	180	Aug. 29	530
Fixture	For regrinding surfaces of grinder support blades	Cincinnati Milling Machine Co.	181	Aug. 29	530
Drill	16-inch sensitive type; bench and floor models	Buffalo Forge Co.	182	Aug. 29	531
Gear hobbing machine	Motor-in-base; oil filter; other improvements	Brown & Sharpe Mfg. Co.	183	Aug. 29	531
Jig borers	Numerous improvements on old types	Societe Genevoise d'Instr. de Phys.	184	Aug. 29	531
Grinder	For general shop use; 1-horsepower rating	Schauer Machine Co.	185	Sept. 5	600
Planer control	Pendant pushbutton and magnetic controller	General Electric Co.	186	Sept. 5	600
Tractor-welder	Welding unit mounted on tractor extension frame	Pontiac Tractor Co.	187	Sept. 5	600
Valve hole driller	Performs variety of operations on engine cylinders	Defiance Machine Works	188	Sept. 5	600
Generator	Portable acetylene generator for welding and cutting work	Alexander Milburn Co.	189	Sept. 5	601
Sprayer	All-purpose electric paint spraying and finishing unit	Binks Mfg. Co.	190	Sept. 5	601
Gear lapping machine	Based on governed corrective abrasion principle	Lehmann Machine Co.	191	Sept. 5	601
Welding outfit	Electrode feeding device, control cabinet, panel	Westinghouse Electric & Mfg. Co.	192	Sept. 5	602
Vise	Combination pipe vise with steel slide	Simplex Tool Co.	193	Sept. 5	602



No. 185—Electric bench grinder, one horsepower rating

Grinder Is Designed for General Shop Use

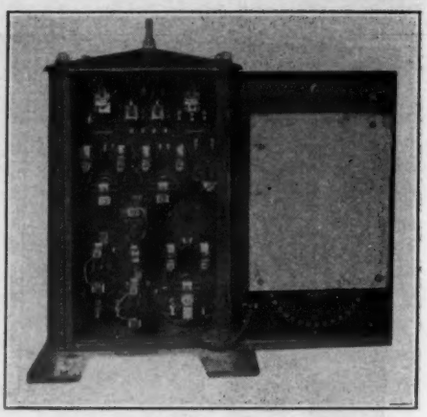
No. 185

Schauer Machine Co., Cincinnati, recently has placed on the market a 1-horsepower bench grinder, shown in the accompanying illustration, for use with either alternating or direct current, and designed especially for general shop use. It is mounted on a base which contains a safety-type toggle switch. The motor is completely enclosed for use in either wet or dry grinding operations. Wheels are enclosed by newly designed end guards and tool rests are mounted on the wheel guards so as to be readily adjustable for any grinding position. End bells are arranged to give maximum working space between the motor housing and wheel. Solid race double-row ball bearings are used, one at each end of the shaft, dust proof and running in grease. Height of the grinder from the base to wheel center is 11 inches. Wheels are 1 x 10 inches in size, operating at a speed of 2000 revolutions per minute on direct current and 1750 revolutions per minute on alternating current. Weight of the complete unit is 162 pounds.

Pendant Pushbutton Aids Planer Operators

No. 186

General Electric Co., Schenectady, N. Y., recently has developed a new magnetic controller and pushbutton station which permit control of planers from a pendant pushbutton. The panel, shown in the accompanying illustration, is of standard design with an added section on which are mounted the relaying contactors governed by the pushbutton station. The pendant pushbutton station has four buttons—"automatic," "out," "return" and "stop." The starting button is located at the controller itself but after pressing the "stop" button at the pendant station, operation may be resumed by pressing the "automatic" button. The "stop" button is at the bottom of the station and is accessible from all angles. The pushbutton station is approximately 2 inches wide, 6 inches high and 2¼ inches deep. In operation, pressing the starting button in the door of the main panel closes the circuit breaker contactor. The "automatic" button then is pressed, but operation does not start until either the "out" or "return" button has been pressed,



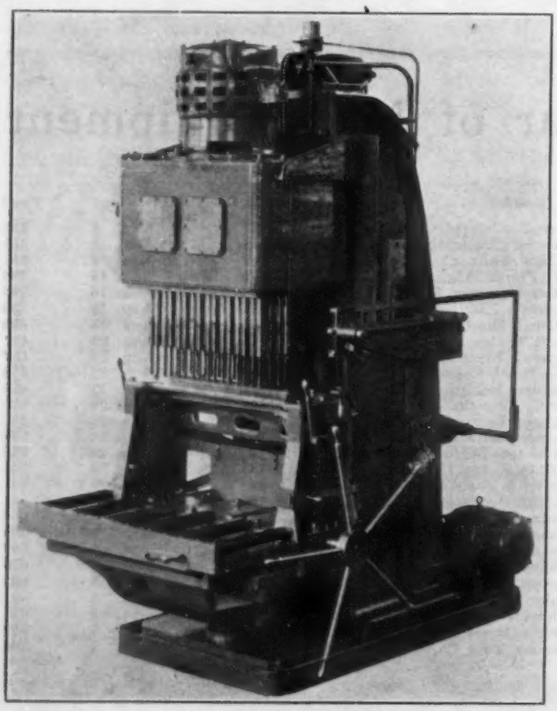
No. 186—Special panel for planer pushbutton control

depending upon the desired running direction. If the wrong button is pressed for the position of the planer at that time the motors will not start. The outstanding advantage claimed for the new control is that, when machining large castings, it is not necessary for the operator to climb out of the casting each time it is desired to operate the planer since he has full control from the pendant pushbutton.

Announces New Tractor-Welder Combination

No. 187

Pontiac Tractor Co., Pontiac, Mich., announces the development of a new tractor-welder unit consisting of a 200 or 300-ampere welding machine mounted on an extension frame of a standard gasoline-driven tractor. The extension frame in this mounting is such that the tractor is set into a 4-inch I-beam frame and the front axle assembly is set ahead under the frame, thereby lengthening the wheelbase. This construction reinforces the tractor and gives it balance, facilitating steering with the added weight. The welder unit complete with panel is mounted on this frame member ahead of the tractor and takes its drive from the power pulley at the side of the tractor by a belt. This makes a compact self-contained unit capable of moving about under its own power. Road speed is 15 miles per hour. Rear tires are the dual type, 48 x 4 inches in size.

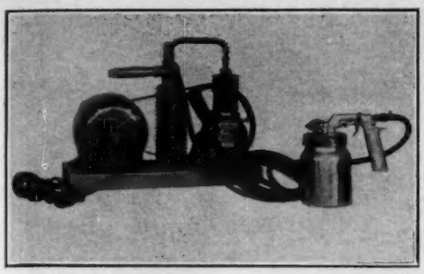


No. 188 — Machine designed for valve hole drilling, reaming and counterboring and spot facing for automobile and tractor cylinder blocks

Oilgear Feeds on Valve Hole Drilling Units

No. 188

Defiance Machine Works, Defiance, O., recently has designed a series of valve hole drilling, reaming and counterboring and spot facing ma-



No. 190—All-purpose paint sprayer

chines for automobile and tractor cylinder blocks and cylinder heads. The machines may be equipped with several types of interchangeable heads with a different number of spindles and tooled for different operations. All spindles are made of heat treated alloy steel and are equipped with heat treated gears of the helical type using ball thrust bearings. The heads are enclosed and are lubricated with a force feed system. Oilgear feeds are employed and are adjustable with rapid traverse movement to and from the work. Adjustable tables are provided with screw jack supports for the overhang. The table, as shown in the accompanying illustration, extends in front of the machine and is fitted with rollers to match conveyor tables for passing the blocks along from one machine to another. Columns are heavy cored castings which support the oilgear cylinders for operating the heads and also enclose the weights that counterbalance the heads.

Generator Body of Drawn Seamless Steel

ITP No. 189

Alexander Milburn Co., 1416 West Baltimore street, Baltimore, has developed a new portable acetylene generator for welding and cutting operations. The generator, shown in the accompanying illustration, is made in three capacities, 35, 70 and 100 pounds. The body is of drawn seamless steel which is said to produce a lighter and stronger finished unit. The carbide hopper feed control and head are assembled in one unit which can be detached from the body by the removal of a few bolts. Carbide feed is controlled by a single valve which responds to high or low pressure and automatically closes if no pressure exists, or if the filler plug is open. The machine is equipped with blow-off valves, pressure control, safety gas purifier and strainer. Component parts are made with oversize outlets, all welded into the seamless body which has a protective coating applied to it both inside and out. Convenient handles are welded to the body to provide for transporting the generator.

Paint Spraying Unit Is Built Sturdily

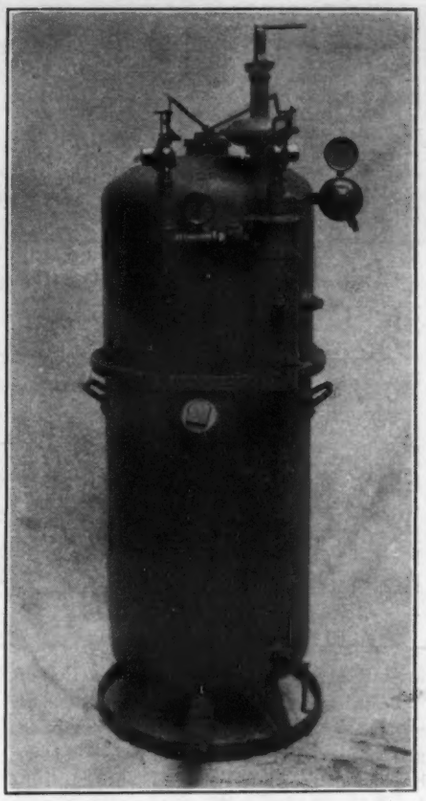
ITP No. 190

Binks Mfg. Co., 3114 Carroll avenue, Chicago, announces an all-purpose spray painting and finishing outfit for general utility work such as touching up, refinishing, repainting and lacquering materials. It is equipped with an all-metal container of 1-quart capacity and a pressure cup spray gun supplying a flat spray 4 inches in width. The air compressor unit, as shown in the accompanying illustration, is belt driven and connected to a ¼-horsepower electric motor. This unit has a capacity of 2.16 cubic feet of air per minute. A ribbed cast-iron air container is mounted between the motor and compressor on a pressed metal base, all of which is mounted on rubber feet. The cylinder and base are of machined cast iron. Ten feet of rubber covered electric cord, attachment plug and 10 feet of braided rubber air hose are furnished.

Gear Lapping Machine Is Designed Simply

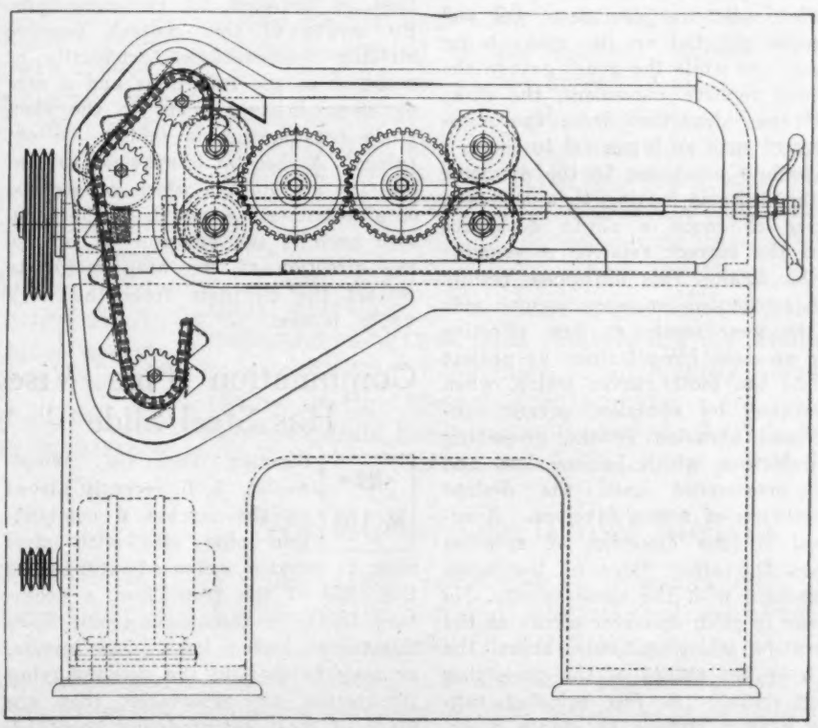
ITP No. 191

Lehmann Machine Co., Chouteau and Grand boulevard, St. Louis, is manufacturing a machine for lapping the teeth of gears, especially



No. 189—Portable acetylene generator

hardened gears, to the shape necessary for smooth running qualities; its functions being based on corrective abrasion governed by the restraining movements of round disks under pressure contact. The machine, a diagram of which is shown in the accompany-



No. 191—Diagrammatic layout of simplified gear lapping machine

No. 192—Automatic welding head showing nozzle assembly

ing illustration, consists primarily of two spindles upon the outer ends of which the mating gears to be lapped are secured. These spindles carry hardened friction rolls of substantially the exact pitch diameter of the gears, and are driven by contact with rolls on the driving spindles of the machine, two of these driving spindles being journaled in a head which is adjustable to bring the gear carrying spindles together until their hardened rolls are under pressure contact and the position of the mating gears is limited to the correct center distance. The pressure on the disks reacts on eight ball bearings in which the friction rolls are journaled. Oil and abrasive are fed on the gears being lapped and while the gears govern the general relative movement, the disks resist any departure from the regularity of such as is normal to them.

Absolute exactness in the diameter of the disks is lacking to a sufficient degree to cause a slight departure from the correct relative movements of the disks. This difference results in a continuous pressure on one side of the gear teeth, at first effective only on such irregularities as project beyond the tooth curves which, when diminished by abrasion, permit contact and abrasion of the projecting irregularities which become less and less pronounced until the desired smoothness of action develops. A reversal in the direction of rotation brings the other sides of the teeth in contact with the same results. No change in pitch diameter occurs as the corrective abrasion only thins the teeth by the extent of the projecting irregularities. A few minutes running usually suffices to obtain a desirable smoothness of action. Gears are put on and removed quickly and one operator can handle several of the machines.

Automatic Welding Unit Has Compact Design

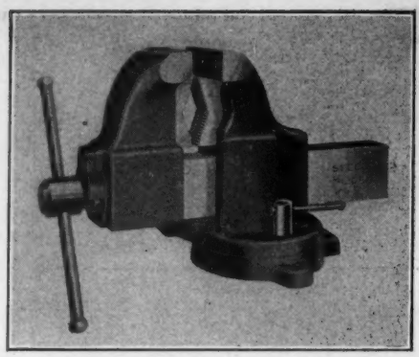
ITE No. 192

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has developed a new and improved automatic welding outfit. The equipment is complete with electrode feeding device, control cabinet and operator's panel and is designed to operate from either variable or constant voltage welding motor generator sets. The unit automatically strikes and holds an arc between an electrode and the work to be welded without external assistance other than pressing the starter button. The feeding device is of compact design, brought about by a method of automatic arc control which permits elimination of all clutches, relays, springs and similar parts which might require delicate adjustment and frequent renewal. As shown in the accompanying illustration, the drive motor is mounted in a cylindrical frame which supports the nozzle assembly. The nozzle has adjustments for being moved in two planes and the nozzle assembly can be reversed easily to be either a right hand or left hand assembly. Control units are mounted in a cabinet in which is placed a small motor-generator set for automatic control of the head motor, to change its speed and the direction of electrode feed as required by arc conditions. By means of this control, positive striking characteristics, sensitivity of response to arc conditions and a rate of electrode feed equal to the electrode consumption is said to be obtained. A rheostat is provided to control the arc voltage which is recorded on a voltmeter. A switch on the panel also permits the operator to reverse the direction of the head motor to retract the electrode from the work under power.

Combination Pipe Vise Has Steel Slide

ITE No. 193

Simplex Tool Co., Woonsocket, R. I., recently placed on the market a combination pipe vise with steel slide to provide increased strength in the slide of the front jaw, a necessary factor in combination pipe vises due to the higher jaws. Jaw inserts, as may be seen in the accompanying illustration, are removable; they are made of steel, serrated and hardened. The screw is cut with a square thread



No. 193—Combination pipe vise equipped with steel slide

and is made of steel with a high tensile strength to provide maximum gripping power and minimum wear. Tendency of the screw to bind in the nut inside the slide is claimed to have been eliminated by making the nut longer and adding a front support. The vise is made in two sizes, one with jaws 3¾ inches wide and accommodating pipe up to 2½ inches in diameter, and the other with jaws 4¾ inches wide and retaining pipe up to 4 inches in diameter.

New Trends Forecasted at Expositions

(*Concluded from Page* 599)

molybdenum, cobalt, manganese, titanium, silicon, or other elements in varying combinations are meeting the needs for stronger and more rigid machines. It is not improbable that the time will come when little simple carbon steel will be utilized in the construction of machine tools.

The trend toward the incorporation of more automatic features on machines continues. Automatic and continuous operations are features which designers seek to incorporate in every new machine. Whenever possible an effort is made to have one operator to supervise more than one machine, thereby reducing labor charges.

Furtherance of the use of hydraulic principles on feeds and other control movements is noted also. This is a development which has been under way for several years and seems to have lost none of its acceptability among machine tool users.

Developments which are on display at these two previously mentioned expositions are considered so important by many buyers that a noticeable effect is felt in machinery markets. A lull in buying of about one month's duration is noted previous to the machine tool show, with a period of active buying ensuing for some time after the show.

Editorials

Stock Rise Complicates Merger

NEW highs are being registered almost daily by the common shares of steel producers expected to figure in the long-discussed "independent" merger, apparently further complicating a problem which, under the most favorable circumstances, would require great financial skill to solve.

Steadily the relationships between the rumored components are being realigned. By some fortuitous condition, it may be that the uneven rises will tend to bring the various stocks into line, but this is a long chance and the higher the stocks soar the greater the sums eventually involved. It is only natural that stockholders of the respective companies covet the highest value possible upon their holdings.

Earlier in the year, Inland Steel Co. common stock could be purchased below $80, but today it approximates $107, an advance of about 30 per cent. Youngstown Sheet & Tube Co. common has gone from about $100 to about $170, a rise of 70 per cent. Republic Iron & Steel Co. common has pushed up from $79 to $125, or 58 per cent. Central Alloy Steel Corp. common is now priced at about $53, compared with the 1929 low of $40; here the increase is 33 per cent.

For any successful consolidation, the actual equities behind each stock must govern. Otherwise, a grouping larger than the Bethlehem Steel Co. today would make an inauspicious start under a fictitious financial framework. Were merely an exchange of stock involved, the problem would be difficult enough, but some securities undoubtedly must be offered to the public. While stock market quotations today frequently bear little relation to current earnings, nevertheless the income possibilities from the issues must be considered. Certainly the rising stock market can scarcely be termed a friendly agent of the proposed merger, and it may prove an embarrassing one.

Measuring Periods of Purchasing

IS YOUR company buying in smaller quantities, in proportion to its needs, now than it did five years ago? This question was addressed by a group of economists to 130 companies located in various parts of the country, representing many industries. The replies were significant of the widespread change in practice of purchasing. Seventy-five per cent were in the affirmative, and 21 per cent in the negative.

To the question: Does your company order at more frequent intervals now than it did five years ago? eighty-six per cent replied "yes," and only 14 per cent "no." The replies in general indicate that the most common period of placing orders ahead was 90 to 120 days in 1914, and only 30 to 60 days in 1928. Orders for steel were placed 60 days or more in advance by 92 per cent of the purchasers reporting for 1914, and by only 40 per cent in 1928. The purchasing of pig iron for "a quarter" was general a few years ago; in 1928 thirty-three per cent of the purchasers reporting placed orders for only 30 to 60 days ahead. Prior to 1922 no company reported placing orders for nonferrous metals less than 30 days in advance; in 1928 almost half the reports indicated companies were so ordering.

A marked decline is shown in stock burden or "inventories" when 1928 is compared with 1914, but striking exceptions are noted in machinery, wire and hardware.

Despite the general knowledge that the period of buying ahead has been shortened, comparatively few specific data have been available to those chiefly interested in the subject. Sellers have noted the tendency of purchasers to place smaller orders, more frequently, thus reducing the consumers' stocks and placing a heavier burden on producers. They have been impressed with the change so far as they have had actual experience with it, but have had no means of measuring their own experience with that of others and their averages. The leading article in this issue, compiled from data obtained by the Brookings Institute of Economics, is particularly illuminating in this respect, for iron and steel, nonferrous metals, hardware and other metal products.

World Steel Use Grows Steadily

INCREASING world use of iron and steel is reflected in first half statistics of production in European countries, following those of the United States. Production figures uniformly show an increase for first half of 1929, compared with those of the first half of 1928. The only

exception is a loss of 0.27 per cent in German pig iron.

To summarize the returns for first half, compared with first half 1928: Great Britain gained 5.3 per cent in pig iron and 13.7 in steel ingots and castings; France gained 4.10 per cent in pig iron and 4.15 in steel; Luxemburg gained 2.20 per cent in pig iron and 3.55 per cent in steel; Germany increased steel production 5.00 per cent but its pig iron production was 0.27 per cent less.

While these rates of increase are not large compared with the increase of 16.95 per cent in pig iron and 17.85 per cent in steel ingots and castings in the United States in first half, they indicate a steady growth in utilization of iron and steel all over the world. No nation is increasing its output at the expense of other nations. Large increases in the exportation of finished steel denote increased consumption in countries lacking a steel industry.

An interesting fact is that France, in the period under discussion, increased its coke output 8.85 per cent and its coke exports 48.75 per cent. Germany increased its exports of pig iron 63 per cent and exports of other iron and steel products 13.10 per cent. At the same time, Germany increased its imports of pig iron 47 per cent and of other ferrous products 30.75 per cent.

In the light of these figures it would seem probable that the United States in 1929 may produce more than half the pig iron and steel of the world. In 1928 we produced, in round numbers, 51,000,000 tons of steel of a world output of 107,000,000 tons and 37,000,000 tons of pig iron of a world total of 86,000,000. In each case the figures fell only a little short of half. With an increase of about 17 per cent, compared with the smaller percentages of gain by other producing nations, it seems entirely possible the half mark may be reached this year.

Nonresistance a Northern Policy?

WHEN a steelmaker at Peoria, Ill., is able to buy 10,000 tons of southern basic iron at $12, Birmingham, or about $17, delivered, and option additional tonnage, the determination of southern pig iron producers to broaden their markets can scarcely be questioned.

Some months, however, must elapse before the vital effect of their campaign is ascertained. Thus far blast furnaces in the invaded northern districts have chosen, generally, to ignore the competition and permit the southern furnaces to fill up their order books or move stock at prices which would be ruinous for the northern furnaces. Only time will tell how much business the North is willing to concede the South, or whether the South deems current prices too low.

The southern price situation has two distinct facets. For delivery in immediate home territory it is claimed that $14, Birmingham, is the minimum on No. 2 foundry iron. This corresponds with the practice of many northern furnaces of capitalizing their location. Reaching into outside territory, southern foundry iron is reported sold below $13, Birmingham. The above-mentioned sale is the lowest known in the North of southern basic.

From Birmingham to Cincinnati and many Ohio river points the freight rate is $3.69 per gross ton; to St. Louis, $4.42; to Chicago, $6.01; to Cleveland $6; and to many Michigan destinations slightly under $6. At many important points the delivered price of southern iron undercuts northern iron. Not all northern melters can use southern anaylsis. Nor are some northern melters convinced that southern iron is in the northern markets to stay.

Meanwhile, southern iron has not been priced so low since late 1915. It may be that the Birmingham producers will regain their markets in the Ohio valley. How much farther north they can maintain themselves will depend upon the price policies of both themselves and their northern competitors, the condition of the southern cast iron pipe industry and the price of competitive grades of scrap iron and steel in the North.

Car Outlook Bright Despite July Ebb

OPTIMISM of freight carbuilders is not one whit dimmed by the sharp decline in domestic freight car awards in July to 341. This was the lowest point reached since August, 1926, when only 152 cars were placed. The total for seven months this year—63,157 cars—exceeds all of 1928 by 18,394. It is within 138 of equaling the aggregate for 12 months of 1927 and within 1318 of the 1926 total.

With August lettings estimated at approximately 2500, the upswing is on. Since about 3700 freight cars are actively pending in the East and at least five western roads have announced that about Oct. 1 they will issue formal inquiries for appreciable numbers of cars, the upturn should be fully recognizable by early fall, since many of those cars will be placed before the year ends.

It is easily seen that monthly averages for 1929 will touch new high levels, as the year's total mounts to new record-breaking heights.

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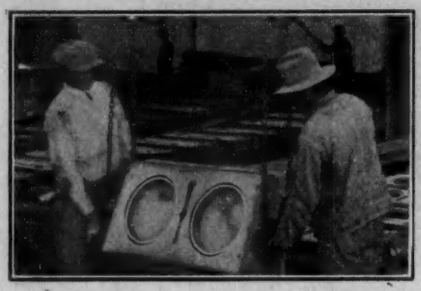

Handling Devices Save Time, Reduce Costs. Page 589.

From "Red Ink" to Profit

HOW modernization can change the whole course of an industrial establishment, take it out of the "red ink" column and put in on a sound operating and financial basis is described in the article beginning on page 589. This has to do with a plant in New Jersey manufacturing steel castings; the details will prove of special interest to foundrymen, but the example is of much broader application, and no doubt will lead others to examine their own problems in the light of this interesting experience. When the management changed hands the general practice in the foundry was found too inefficient and costly. The layout was revamped on direct-line, labor saving principles, an up-to-date handling system was installed, and in some departments production costs were reduced 25 per cent. Many other changes were made, and today the company is operating at a profit.

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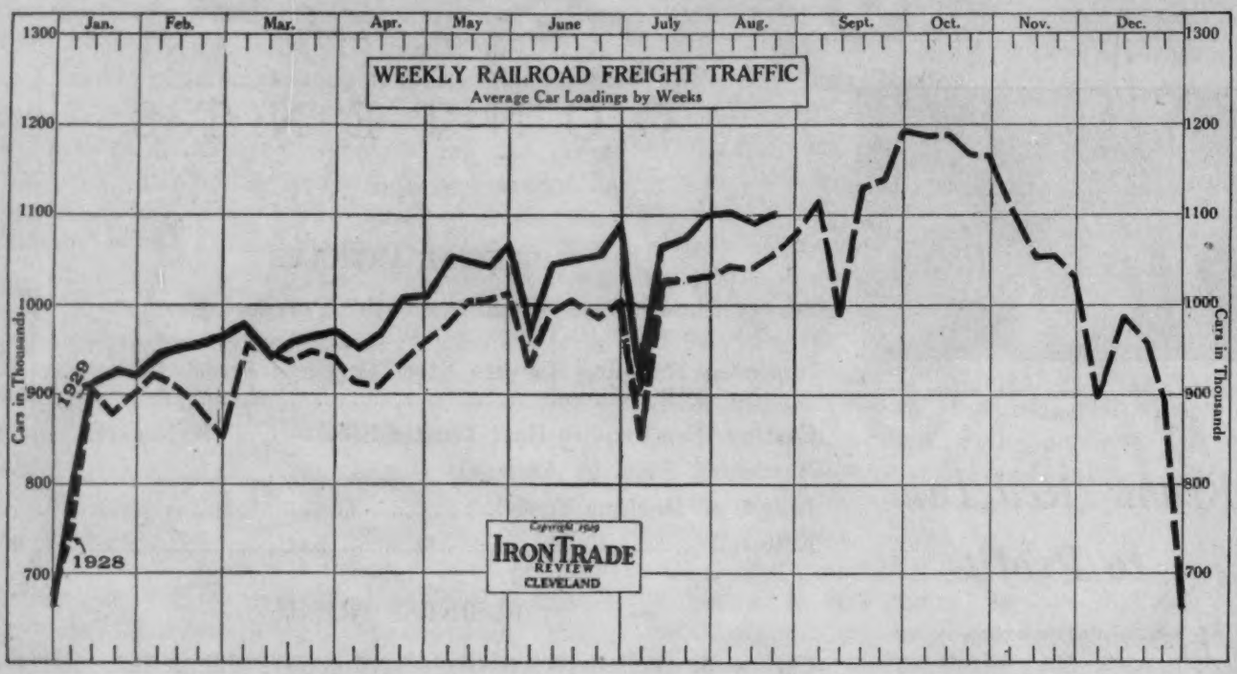
The Business Trend



Car Loadings Reflect Activity

By JOHN W. HILL, Financial Editor

ONE of the truly notable and significant developments of 1929 has been the substantial and sustained increase in freight movements over the preceding years. From the first of the year to Aug. 17, 33,045,234 cars of revenue freight had been loaded on the railroads, compared with 31,556,812 cars in the like period of 1928 and with 32,575,306 in the like period of 1927.

THE large volume of freight reflects the high rate of industrial production and distribution. During the week ended Aug. 17, the number of freight car loadings was 1,100,267. This was an increase over the preceding week and compares with 1,057,909 one year ago and 1,066,828 cars two years ago. There were gains in the movement of miscellaneous freight, coal, merchandise, lumber, ore and coke. Only for livestock was there any decrease.

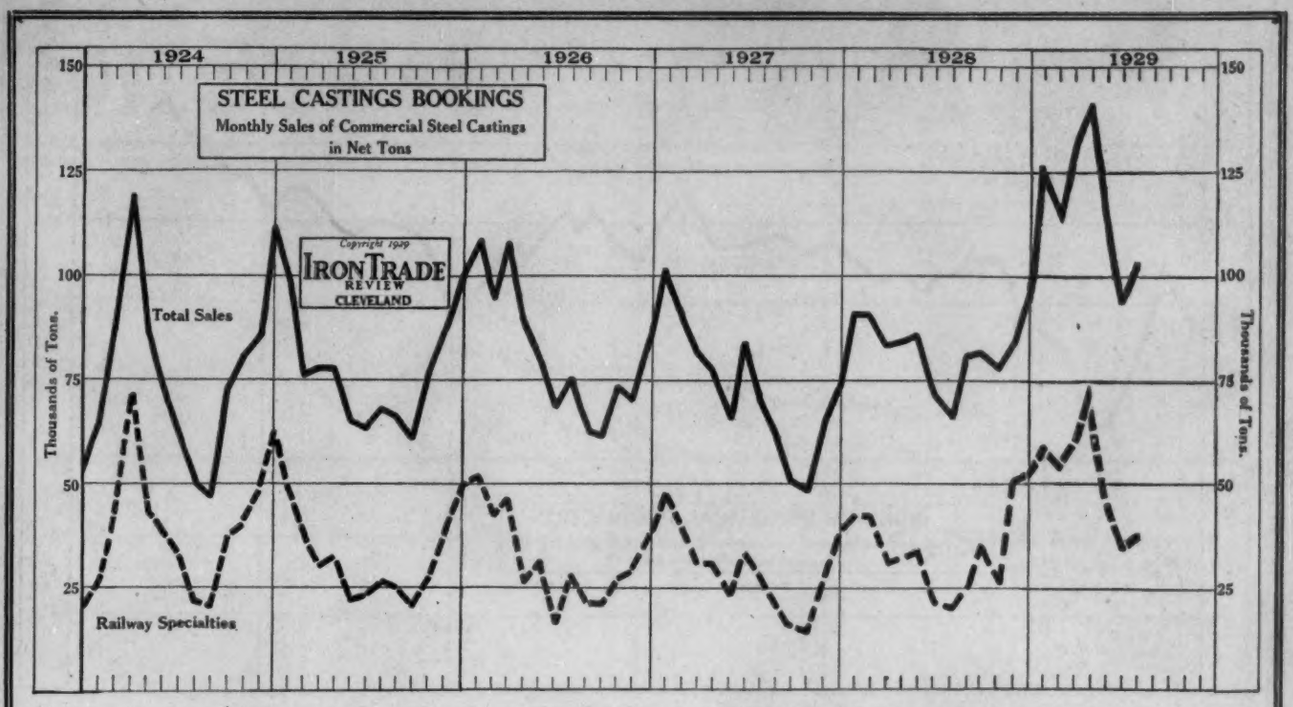
PROBABLY there has never been a summer during which business disclosed such trifling recession as the present. This has been noted particularly in the iron and steel industry, where operations had not fallen much below 90 per cent of capacity during the last week in August.

THE key to the situation with respect to steel operations is held pretty largely in the hands of automobile manufacturers. The most hopeful phase of the automobile situation lies in the fact that most reliable reports indicate the lack of any burdensome accumulation of unsold dealers' stocks.

IN THE face of such tremendous production as was witnessed during the first half of the year, this is a constructive factor. When producers begin larger operations on new models a little later in the year, increasing outputs are probable. One of the notable indications that autumn conditions would bring the normal seasonal increase in activity generally is to be found in the heavier sales of pig iron.

WITH industrial improvement holding at a high level throughout the year and agricultural conditions materially improved, larger consumer purchasing and increased trade activity are probable during the fall. The credit situation is uncertain, but its effect upon business so far has been negligible. Stock market loans have been increasing, but these funds have been coming largely from coffers of large corporations.

The Business Trend

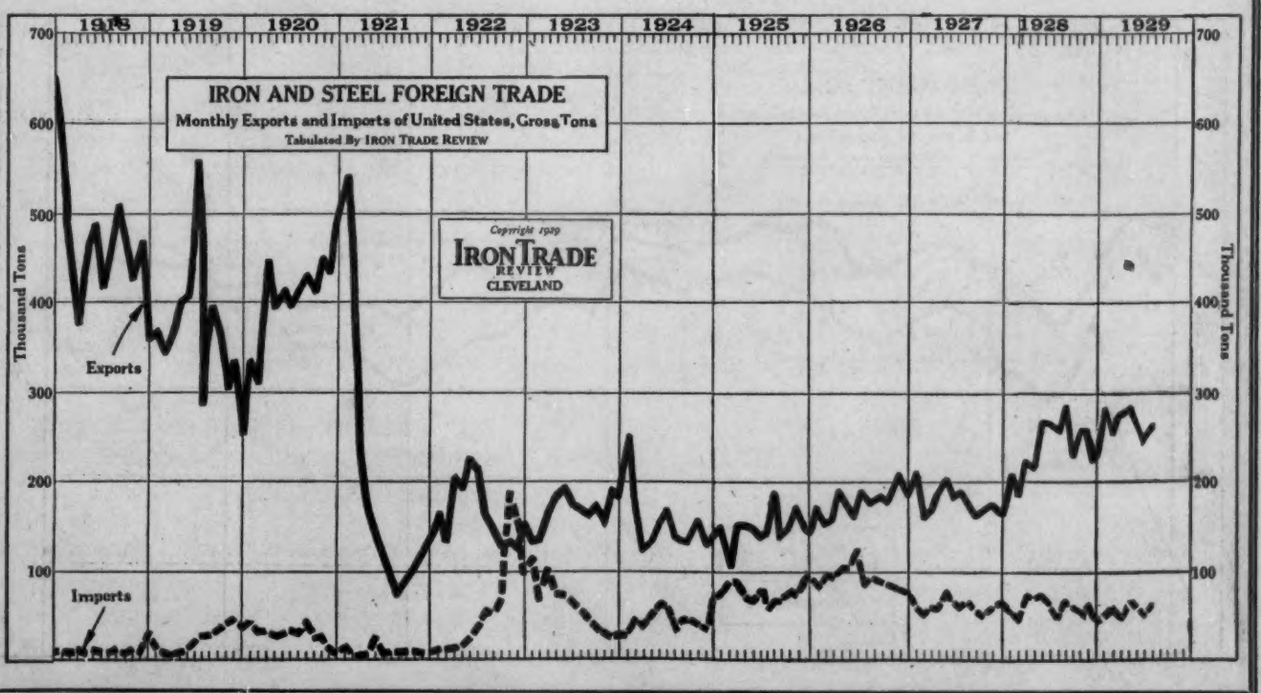


Steel Castings

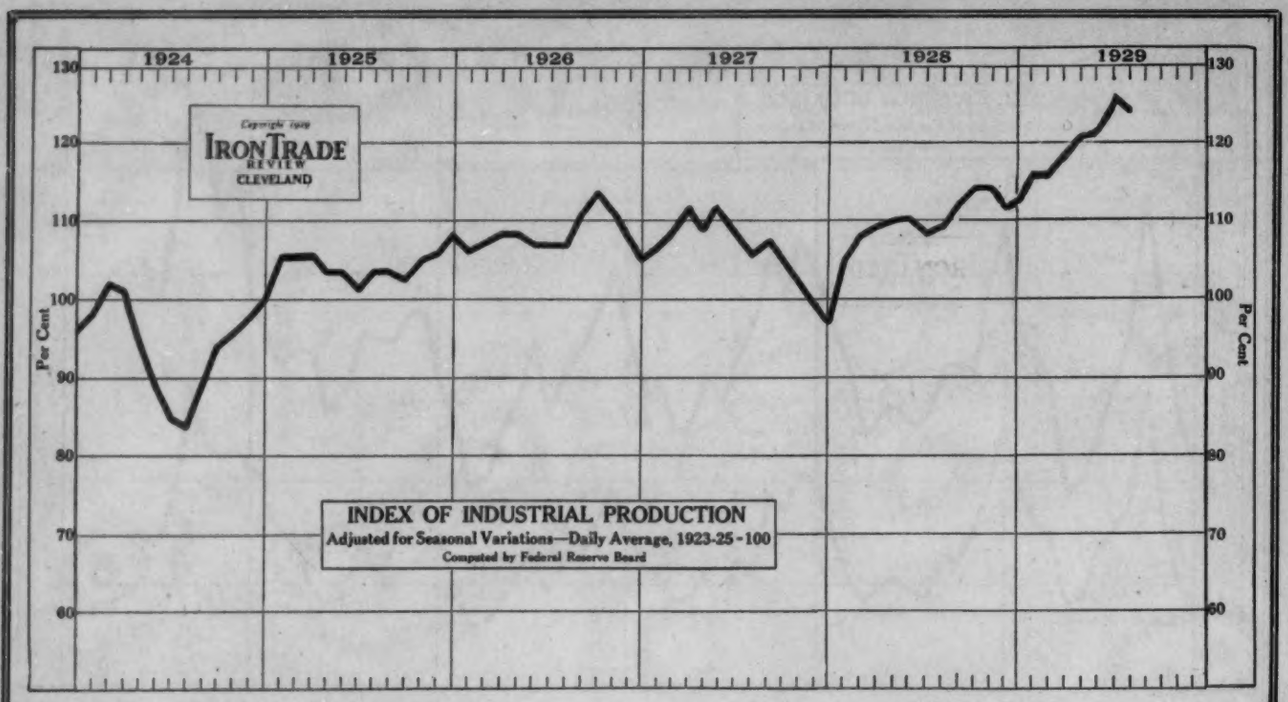
BOOKINGS of commercial steel castings in July showed a sharp increase over the preceding month, rising to a total nearly double that of one year ago. Total bookings during the month were 103,447 tons, compared with 94,996 tons in June and 66,992 tons in July, 1928. Railway specialty bookings in July were 37,383 tons, compared with 34,947 tons in June and 20,483 tons in July, 1928. For the first seven months of the year total bookings were 827,176 tons against 576,260 tons one year ago.

Steel Foreign Trade

EXPORTS and imports of iron and steel in July were greater than for the preceding month. Total exports were 270,532 tons, compared with 247,811 tons in June and 253,336 tons in July, 1928. Imports of 71,378 tons compared with 63,635 tons in June and 47,830 tons in July, 1928. For the first seven months of the year exports of American iron and steel products were 1,862,372 tons, compared with 1,610,698 tons in the like period of 1928; imports were 429,223 tons against 441,558 tons one year ago.



The Business Trend

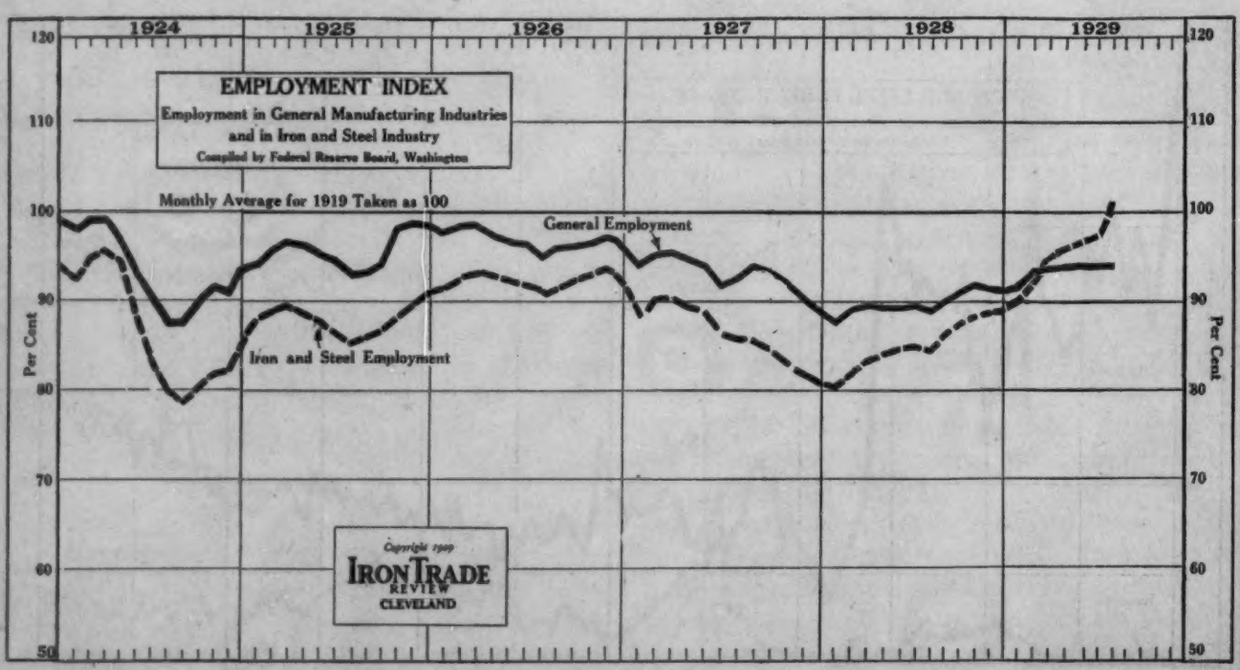


Industrial Production

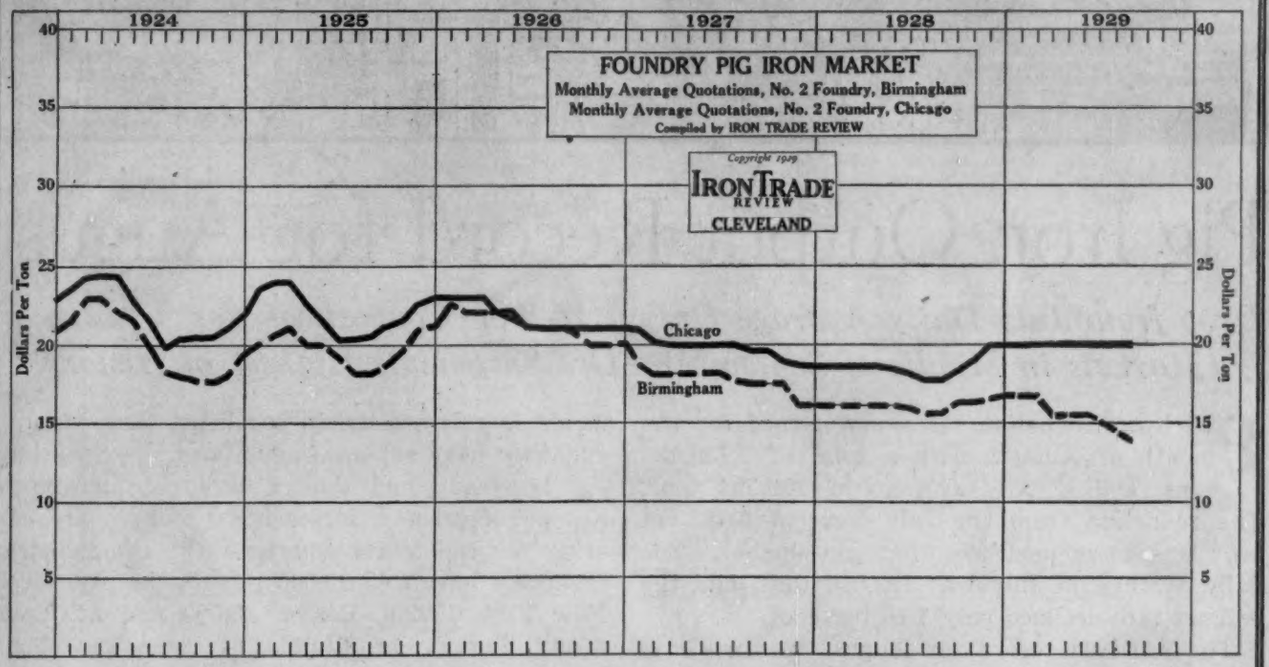
PRODUCTION of manufactures during the current summer has made a new high record for all time at this season of the year. The index compiled by the Federal Reserve board stood at 124 in July, a decrease of only two points from the index figure of 126 one month before. One year ago this index was slightly below 110. During July average daily output of automobiles, copper, tin, zinc and cotton and wool textiles descreased, and there was some small decline in the production of iron and steel.

Employment Index

EMPLOYMENT in manufacturing industries continues at a high level for this season of the year. The total employment index computed by the Federal Reserve board stood at 94.3 in July, unchanged from the preceding month, and comparing with 89 one year ago. Iron and steel employment continues to show improvement, the index in July standing at 101, compared with 98.5 one month before and 86 one year ago. As reflected by the employment figures, industry has seen little summer slump.



The Business Trend

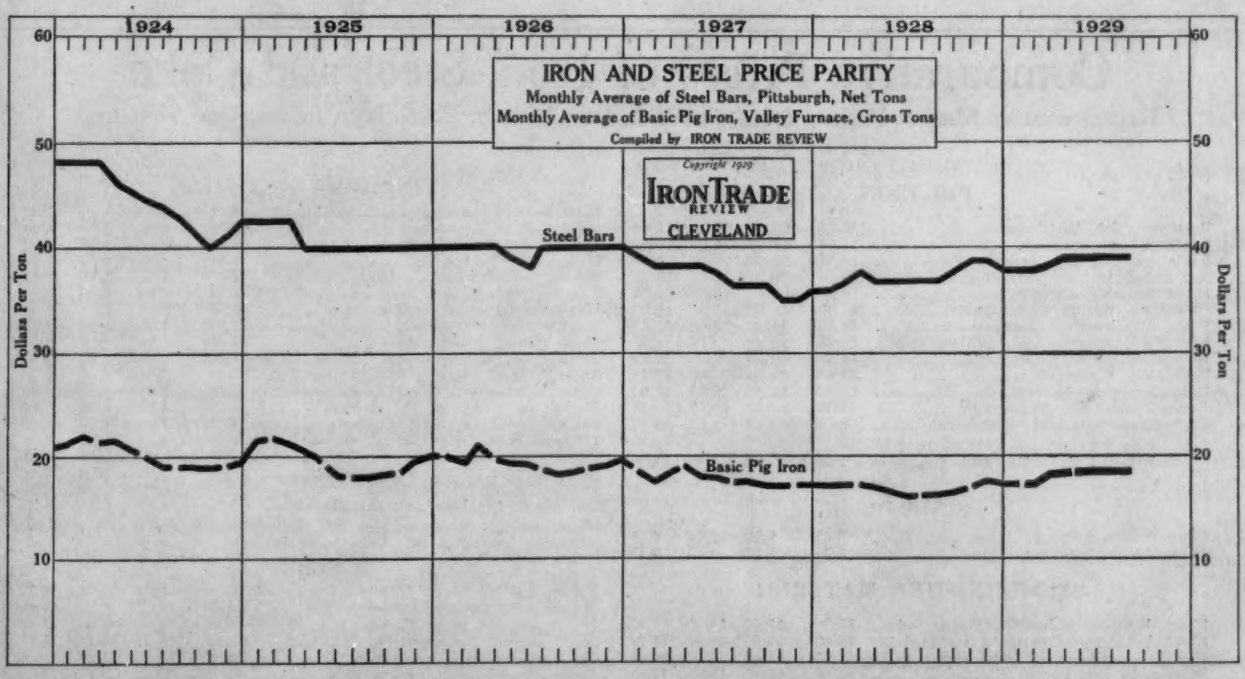


Foundry Pig Iron

CURTAILMENT of production has already taken place in southern pig iron and some further slackening is expected. Southern basic has sold as low as $12 and No. 2 foundry below $13 a ton in competitive districts. The average price for southern No. 2, Birmingham, in August was $14 a ton, compared with $14.40 in July and $15.65 in August, 1928. Northern foundry iron has held steady, with No. 2 foundry, Chicago, quoted at $20 a ton in August, unchanged since July and comparing with $17.60 one year ago.

Steel Price Parity

ONE of the noteworthy developments of the last few weeks has been the increasing demand for pig iron. Shipments of pig iron in August were equal to those in July. The price of basic valley iron during the month stood at $18.50 a ton, unchanged from the previous month and $2.50 a ton higher than the price in August, 1928. No concessions have appeared in the quotations for steel bars, Pittsburgh, which continue at $39 a ton, compared with $38 a ton one year ago.



Pig Iron Output Record for August

Drop from July Daily Average Only 1.16 Per Cent—Look for Upturn in Markets in Middle of September—Ore Shipments Highest in History

PIG iron production set a new record for the month of August, with a total of 3,738,438 tons, and a daily average of 120,594 tons. The reduction from the July total of 3,782,511 tons was more moderate than anticipated. The daily average in July was 122,016 tons, and the August rate declined only 1.16 per cent.

The previous record for August was made in 1923, with a daily average of 111,254 tons, and August this year topped that by 8.37 per cent. Daily average production in August this year is 19.2 per cent higher than that of August, 1928.

Output for the first eight months this year, 29,158,486 tons, is a new record for the comparable period, and an increase of 4,438,317 tons over the first eight months of 1928. A net loss of seven active stacks occurred during August, with 210 operating on the last day of the month.

Market Activity Is More Impressive

Market activity in pig iron is in harmony with this strong situation in production. August shipments in many districts paralleled those of July and may have set an August record. Spot buying is steady and though a buying movement has not developed, increasingly melters are covering for the fourth quarter. Cleveland district producers have sold 22,000 tons in the past week, New York 12,000, Boston 10,000 and St. Louis 6000. Inquiry at Buffalo is extensive. Some southern furnaces, after selling basic iron in the North at $12, Birmingham, and No. 2 foundry at $12.50, have stiffened. Two eastern pipe shops have purchased a total of 40,000 tons of southern iron in the past week.

Upturn in Steel Expected in Few Weeks

In steel the outlook is equally auspicious. What normally are the two poorest months of the year are now behind the industry. In a week or ten days books will be opened for the last quarter. It is recognized that automotive production may be approaching the lightest quarter of the year and railroad equipment buying may fall short of

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Sept. 4, 1929	Aug. 1929	June 1929	Sept. 1928
PIG IRON				
Bessemer, del. Pittsburgh	$20.76	20.76	20.76	18.86
Basic, valley	18.50	18.50	18.50	16.10
Basic, eastern, del. eastern Pa.	19.85	19.85	20.25	19.00
No. 2 foundry, del. Pittsburgh	19.76	19.76	19.76	18.61
No. 2 foundry, Chicago	20.00	20.00	20.00	18.25
*Southern No. 2, Birmingham	14.00	14.00	15.25	16.25
**No. 2X, Virginia furnace	20.00	20.00	20.00	20.50
**No. 2X, Eastern del. Philadelphia	22.26	22.26	22.76	21.01
Malleable, valley	19.00	19.00	19.00	17.10
Malleable, Chicago	20.00	20.00	20.00	18.25
Lake Superior charcoal, del. Chicago	27.04	27.04	27.04	27.04
†Gray forge, del. Pittsburgh	19.13	19.13	19.13	18.01
Ferromanganese, del. Pittsburgh	109.79	109.79	109.79	109.79

*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.
†Now based on Pitts. dist. fur. price; formerly on Valley base.

COKE				
Connellsville furnace, ovens	2.65	2.75	2.75	2.75
Connellsville, foundry, ovens	3.75	3.75	3.75	3.75
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	35.00	35.00	35.75	33.00
Sheet bars, open-hearth, Pittsburgh	35.00	35.00	35.75	33.00
Billets, open-hearth, Pittsburgh	35.00	35.00	35.75	32.00
Wire rods, Pittsburgh	42.00	42.00	42.00	42.00

	Sept. 4, 1929	Aug. 1929	June 1929	Sept. 1928
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.95	1.95	1.95	1.90
Steel bars, Chicago	2.05	2.05	2.05	2.00
Steel bars, Philadelphia	2.27	2.27	2.27	2.22
Iron bars, Chicago	2.05	2.05	2.05	2.00
Shapes, Pittsburgh	1.95	1.95	1.95	1.90
Shapes, Philadelphia	2.06	2.06	2.06	2.06
Shapes, Chicago	2.05	2.05	2.05	2.00
Tank plates, Pittsburgh	1.95	1.95	1.95	1.90
Tank plates, Philadelphia	2.15	2.15	2.15	2.10
Tank plates, Chicago	2.05	2.05	2.05	2.00
Sheets, black, No. 24, Pittsburgh	2.85	2.85	2.95	2.65
*Sheets, blue anl., No. 13, Pittsburgh	2.35	2.35	2.35	2.00
Sheets, gal., No. 24, Pittsburgh	3.50	3.55	3.65	3.50
Sheets, black, No. 24, Chicago	3.10	3.10	3.10	2.85
*Sheets, blue anl., No. 13, Chicago	2.50	2.50	2.50	2.15
Sheets, galvanized, No. 24, Chicago	3.75	3.80	3.85	3.65
**Plain wire, Pittsburgh	2.50	2.50	2.50	2.40
**Wire nails, Pittsburgh	2.55	2.60	2.65	2.55
Tin plate, per base box, Pittsburgh	5.35	5.35	5.35	5.25

*Comparisons for June, 1929 and September, 1928, are with old blue annealed base, No. 10. **To large jobbers.

SCRAP				
Heavy melting steel, Pittsburgh	19.00	18.90	18.30	16.55
Heavy melting steel, eastern Pa.	16.50	16.75	16.25	14.65
Heavy melting steel, Chicago	15.25	15.00	14.95	12.90
No. 1 wrought, eastern Pa.	16.25	16.25	16.25	15.10
No. 1 wrought, Chicago	15.75	15.30	15.40	12.90
Rails for rolling, Chicago	17.75	17.75	17.50	15.80

Current Prices for Rolled Steel Products

PRICES IN CENTS PER POUND

STEEL PLATES

Pittsburgh, base	1.95c
Philadelphia, del.	2.15c to 2.25c
New York, del.	2.225c to 2.325c
Boston, del.	2.265c to 2.415c
Chicago, base	2.05c to 2.15c
Cleveland, delivered	2.14c
Lackawanna, N. Y., base	2.05c to 2.15c
Birmingham, base	2.10c
Coatesville, Pa., base	2.00c to 2.10c
Pacific Coast, c.i.f.	2.35c
St. Louis, del.	2.27c
Detroit, del.	2.19c to 2.24c

STRUCTURAL SHAPES

Pittsburgh, base	1.95c
Philadelphia, del.	1.96c to 2.11c
New York, del.	2.195c to 2.245c
Boston, del.	2.265c to 2.415c
Chicago, base	2.05c to 2.15c
Cleveland, delivered	2.09c to 2.14c
Lackawanna, N. Y.	2.05c to 2.15c
Birmingham, base	2.10c
Bethlehem, Pa., base	2.00c to 2.10c
Pacific Coast, c.i.f.	2.35c
Detroit, del.	2.19c to 2.24c

BARS

SOFT STEEL

Pittsburgh, base	1.95c
Chicago, base	2.05c to 2.15c
Birmingham, base	2.10c
Lackawanna, N. Y., base	2.05c to 2.15c
Pacific Coast, c.i.f.	2.35c
Cleveland, base, local mills	1.90c to 1.95c
Cleveland, del., outside mills	1.95c
Philadelphia, del.	2.27c to 2.32c
New York, delivered	2.29c to 2.34c
Boston, delivered	2.265c to 2.415c
Detroit, del.	2.19c to 2.24c
Pittsburgh, cold finishing	2.05c
Pittsburgh, forging quality	2.15c

RAIL STEEL

Chicago Heights	1.95c
Eastern mills	1.85c to 1.95c

IRON

Chicago, base	2.05c to 2.10c
New York, delivered	2.19c to 2.24c
Philadelphia, delivered	2.17c to 2.22c
Pittsburgh, refined	2.75c to 4.25c

REINFORCING

Pittsburgh, billet, cut lengths	2.30c
Stock lengths from mill	2.05c
Chicago, billet	2.30c
Chicago, rail steel	1.95c to 2.05c
Chicago, rail steel, road and bridge work	1.95c to 2.05c
Philadelphia, cut lengths	2.57c to 2.62c

SHEETS

SHEET MILL BLACK, NO. 24

Pittsburgh, base	2.85c
Philadelphia, delivered	3.17c to 3.27c
Gary, Indiana Harbor	3.05c
Chicago, delivered	3.10c
Birmingham, base	3.10c
St. Louis, del.	3.27c

TIN MILL BLACK, NO. 28

Pittsburgh, base	3.00c
Gary, base	3.10c

GALVANIZED, NO. 24

Pittsburgh, base	3.50c to 3.60c
Philadelphia, delivered	3.82c to 3.92c
Gary, Indiana Harbor	3.75c to 3.80c
Chicago, delivered	3.80c to 3.85c
Birmingham, base	3.75c
St. Louis, del.	3.92c

BLUE ANNEALED

Sheets, No. 13

Pittsburgh, base	2.35c
Chicago district mills	2.45c
Chicago, delivered	2.50c
St. Louis, delivered	2.67c
Philadelphia, delivered	2.67c
Birmingham	2.50c

Plates, No. 9 and 10

Pittsburgh, base	2.10c to 2.20c
Chicago district mills	2.30c
Chicago, delivered	2.35c
Philadelphia, delivered	2.52c
St. Louis, delivered	2.67c
Birmingham	2.35c

AUTOMOMILE, NO. 20

Pittsburgh, base	4.10c
Detroit, delivered	4.39c

FURNITURE

Pittsburgh	4.20c

(Turn to the following page)

the rate of the first half; nevertheless, the promise of general manufacturing demand, purchasing of building materials and fall runs of implement makers is bright.

Expectations of an upturn in demand in the middle of September approach the test. Meanwhile, in the face of specifications inferior to production for almost 60 days, steel prices generally have held. Some users have looked for soft spots as the sequel to slack buying. Iron and steel scrap prices are less bullish, due more to expanding supplies than melters' resistance. Coke purchases and prices are steady. Open-market activity in semifinished steel is of no consequence, but a heavy volume is moving in direct transactions.

Steel Bar Specifications Show Improvement

Despite the holiday, specifications for steel bars have improved both at Pittsburgh and Chicago. Demand continues below the level of early July, but the downtrend may have been arrested. Alloy and mild steel bars share this improvement. Plate mills at Pittsburgh have been working off their backlogs, but at Chicago 14,000 tons of fresh domestic and 2500 tons of foreign inquiry buoy the market. Structural activity has been light, with added emphasis upon requirements of road and machinery builders for light sections. Heavy finished steel is 1.95c, Pittsburgh. Some makers of blue annealed sheets have been losing business on account of delivery requirements, but mill backlogs of other grades have been largely dissipated by August operations in excess of bookings. Some pressure upon autobody sheet prices is reported. Strip steel requirements, especially of the automotive industry, are sharply down from the level of 60 days ago. Makers of wire nails claim a more steady price structure, but mill stocks, particularly in the West, continue large. Manufacturers' wire is moving better than other lines.

Chicago district rail mills look for a good volume of secondary buying this month, and for earlier placing of 1930 needs, enabling them to maintain better production rates next quarter. Reading has bought 30,000 tons of rails.

Lake Superior Ore Shipments Highest in History

All August records for water shipments of Lake Superior iron ore fell below the 10,806,967 gross tons moved last month. To Sept. 1 the 1929 movement of Lake Superior ore was 43,717,787 tons, also a record. It is possible that the 1917 achievement of 66,658,466 tons in a season will be surpassed this year.

In Mahoning valley 46 of 51 independent open-hearth furnaces are active, the same as last week. Seven fewer sheet mills, or 106 out of 120, are operating there. Ingot rate at Chicago is averaging 95 per cent, and at Pittsburgh 90 to 95. Steel corporation units are operating at 94 per cent this week four points lower than a week ago. IRON TRADE REVIEW'S composite of 14 leading iron and steel products is unchanged the third consecutive week at $36.52.

Composite Market Average

Based on Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets Tin Plate, Wire Nails and Black Pipe

This week (September 4, 1929)	$36.52
Last week (August, 28, 1929)	36.52
One month ago (August, 1929)	36.54
Three months ago (June, 1929)	36.99
One year ago (September, 1928)	35.19
Ten years ago (September, 1919)	48.35
Fifteen years ago (September, 1914)	23.17

Current Rolled Steel Prices

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED

Tubular Products Quoted On Last Editorial Page—See Preceding Page For Other Products

HOOPS, BANDS, STRIPS

Hot strips, to 6-in., Pitts.	2.00c
Hot strip 6 1/16 to 24-in., Pitts.	1.90c
Hot strip, bands 6 in. and under, Chicago	2.10c to 2.30c
Do, 6 1/16 to 24 in.	2.00c to 2.10c
Cooperage stock, Pittsburgh	2.20c
Do, Chicago	2.30c
Cold rolled strip, hard coils, 16 inches and under by 0.100-inch and heavier, base Pitts., Cleve. (3 ton and over)	2.75c to 2.85c
Worcester, Mass. (3 tons and over)	2.90c to 3.00c

ALLOY STEEL

Hot Rolled
F.o.b. Mills
Alloy Quality Bar Base is 2.65c

S.A.E. Series Number	Alloy differential	Net 100 lb. bars
2000	0.25	$2.90
2100	0.55	3.20
2300	1.50	4.15
2500	2.25	4.90
3100	0.55	3.20
3200	1.35	4.00
3300	3.80	6.45
3400	3.20	5.85
4100 0.15-0.25 Mo.	0.50	3.15
4100 0.25-0.40 Mo.	0.70	3.35
4600 0.20-0.30 Mo. 1.25-1.75 Ni.	1.05	3.70
5100 0.60-0.90 Cr.	0.35	3.00
5100 0.80-1.10 Cr.	0.45	3.10
5100 Chrome Spring	0.20	2.85
6100 Bars	1.20	3.85
6100 Spring Steel	0.95	3.60
Chrome Nickel Vanadium	1.50	4.15
Carbon Vanadium	0.95	3.60
9250 (flats)	0.25	2.90
9250 (rounds, squares)	0.50	3.15

Hot rolled alloy billets 4 x 4-inch and over take same price per gross ton as same specification alloys bars per net ton. Sizes under 4 x 4 to 2½ in. x 2½ in. inclusive sold on bar basis plus steel bar card extras for size. Sizes under 2½ in. x 2½ in. take bar price on net ton basis.

COLD FINISHED STEEL

Cold finished steel bars drawn or rolled, Pitts., Chi., c.l.	2.30c
Do, del. Detroit	2.575c
Shafting (turned, polished) Pittsburgh	2.30c
Shafting (turned, ground) mill (Depending on size, 1 3/16 to 7-inch)	2.65c to 3.10c
Cold finished steel bars, Cleve.	2.35c

WIRE PRODUCTS

F.o.b. Pittsburgh, Cleveland, Ironton base

(Per Pound)	Dealer trade	Large jobbers
Bright plain wire, 6 to 9 gage	2.60c	2.50c
Annealed field wire	2.75c	2.65c
Galvanized wire	3.20c	3.10c
Barbed wire, galvanized	3.30c	3.20c
(Per 100-pound keg)		
Wire nails	$2.65	$2.55
Galvanized nails	4.65	4.55
Polished staples	3.10	3.00
Galvanized staples	3.35	3.25
Cement coated nails	2.65	2.55
Manuf. wire, del. Detroit		2.635c
Wire nails, del. Detroit		$2.785

Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Pittsburgh-Cleveland-Ironton base on products made there; Duluth $2 higher; Worcester, Mass., Fairfield, Ala., $3 higher.

Woven wire fencing, retailers, Pittsburgh-Cleveland, net ton $65.

Anderson, Ind., $1 higher, Chicago $2 higher, Duluth, Birmingham $3 higher.

CUT NAILS, CHAIN, PILING

Cut nails, l.c.l., f.o.b. mills	2.70c to 2.75c
Cut nails, l.c.l. f.o.b. mills	2.80c to 2.85c
Chain proof BB and BBB, Pitts.	
3/16-in. to ½-in.	33 1/3 and 5 off
9/16-in. to 1½-in.	33 1/3 off
Sheet piling, base, Pittsburgh	2.25c

CAST IRON WATER PIPE

Class B Pipe—Per Net Ton

Six-inch and over, Birming'm	$37.00 to 38.00
Four-inch, Birmingham	41.00 to 42.00
Four-inch, Chicago	49.20 to 50.20
Six-inch to 24-inch, Chicago	45.20 to 46.20
Six-inch and over, New York	37.50 to 39.50
Four-inch, New York	40.00 to 41.00
Standard fittings, Bir. base	$100.00

Six to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $4 higher than Class B.

TIN PLATE TERNE PLATE

Prices per 100-pound box Pittsburgh

*Tin plate, coke base	$5.35

Gary, Ind., base 10 cents higher.

Long ternes, primes, No. 24 ..... 4.00c to 4.10c

*Price subject to quantity differentials.

WASHERS

Wrought, c.l., Pitts. dist.	$6.50 to 6.75 off
Wrought, c.l., Chicago dist.	$6.70 2 to 26.90 off
Lock: to dealers	85-5 off
Lock: to consumers	85 off

RAILS, TRACK MATERIAL

Standard bessemer rails, mill	$43.00
Standard open-h'th rails, mill	$43.00
Relay rails, Pitts., 60 to 90 lb.	$24.00 to 29.00
Light rails, 25 to 45, mills	$36.00
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.80c
Spikes, small railroad, 7/16-inch and smaller, Pitts.	2.80c
Spikes, boat and barge, Pitts.	3.00c
Spikes, railroad, Chicago	2.80c
Track bolts, Pitts., steam roads	3.80c
Track bolts, Pitts., stand. jobbers	70 off list
Track bolts, Chicago	3.80c
Tie plates, Chicago, Pitts.	$43.00

BOLTS AND NUTS

Birmingham and Chicago

Discounts are for legitimate jobbing or large consuming trade purchasing in full-case lots, apply to lists of April 1, 1927.

Small lots are 55 to 60 per cent off.

CARRIAGE BOLTS

All sizes, cut thread	60 to 70 off

Rolled thread ⅝ x 6 and smaller take 10 per cent lower list.

Eagle list	60 to 70 off

MACHINE BOLTS

All sizes, cut thread	60 to 70 off

Rolled thread ⅝ x 6 and smaller take 10 per cent lower list.

Lag screws	60 to 70 off
Plow bolts, Nos. 1-2-3-7 heads	60 to 70 off
Tap bolts	60 to 70 off
Blank bolts	60 to 70 off
Stud bolts without nuts	60 to 70 off
Stove bolts, 75, 20, 10 and 5 off in pkgs., 75, 10, 10 and 5 with 2½ off in bulk.	
Tire bolts	60-5 off

Nuts

Semifinished	60 to 70 off

HEXAGON CAP SCREWS

Milled	80-10-5 off
Upset 1 in. diam. and smaller	5 off

SQUARE HEAD SET SCREWS

Milled	80-5 off
Upset 1 in. diam. and smaller	80-10-5 off

RIVETS

Struc., c.l., Pitts.-Cleve.	3.10c
Structural, c.l. Chicago	3.20c
**7/16-inch and smaller, Pitts.	10 and 10 off
Chi., Cleve.	70 to 70 and 10 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Raw Materials and Semifinished Products

SEMIFINISHED STEEL

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$35.00
Pittsburgh, bessemer	35.00
Youngstown	35.00
Cleveland	35.00
Philadelphia	40.30
Chicago	37.00
Forging, Chicago	42.00
Forging, Pittsburgh	40.00 to 41.00
Forging, Philadelphia	45.30

SHEET BARS

Pittsburgh	$35.00
Youngstown	35.00
Cleveland	35.00
Chicago	37.00

SLABS

Pitts., Young.	$35.00
Cleveland	35.00

WIRE RODS

Pittsburgh, Cleveland	$42.00
Chicago	43.00

SKELP

All grades, Pittsburgh	1.90c

IRON ORE

LAKE SUPERIOR ORE

Per Gross Ton, Lower Lake Ports

Old range bessemer, 51½%	$4.80
Mesabi bessemer, 51½%	4.65
Old range nonbessemer, 51½%	4.65
Mesabi nonbessemer, 51½%	4.50
High phosphorus, 51½%	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%	8.00
Copper free low phosphorus 58 to 65 per cent	nominal

FOREIGN ORE

Cents per units, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-8% manganese	11.00 to 11.50
North African low phosphorus	12.00 to 12.50
Swedish foundry or basic, 65%, nominal at	9.00 to 10.00
Spanish and North African basic, 50 to 60 per cent	11.50 to 12.00
Newfoundland foundry, 55%	nominal
Tungsten future, short ton unit, duty paid	16.00 to 16.50

MANGANESE ORE

Prices do not include duty of 1 cent per pound of metallic manganese contained.

Brazilian	34 to 36 cents
Indian	34 to 36 cents
Caucasian, (53-55 per cent)	36 cents

FLUORSPAR

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$18.00
Washed gravel, import duty paid east, tide., gross ton	$21.00

REFRACTORIES

FIRE CLAY BRICK

Per 1000 f.o.b. works

First Quality

Pennsylvania	$43.00 to 46.00
Ohio	43.00 to 46.00
Illinois	43.00 to 46.00
Kentucky	43.00 to 46.00
Missouri	43.00 to 46.00
Maryland	43.00 to 46.00
Georgia and Alabama	40.00 to 45.00

Second Quality

Pennsylvania	35.00 to 38.00
Ohio	35.00 to 38.00
Illinois	35.00 to 38.00
Kentucky	35.00 to 38.00
Missouri	35.00 to 38.00
Maryland	35.00 to 38.00
Georgia and Alabama	30.00 to 35.00

SILICA BRICK

Pennsylvania	43.00
Joliet, Ill., East Chicago, Ind.	52.00
Birmingham	50.00 to 51.00

MAGNESITE BRICK

Per Net Ton

9 x 4½ x 2½	65.00

MAGNESITE

Net Ton Chester, Pa., and Baltimore base

Dead-burned grain magnesite	40.00

CHROME BRICK

Net Ton Chester, Pa., and Baltimore base

9 x 4½ x 2½	45.00

Pig Iron

Market Is More Active For Fourth Quarter—Sales and Shipments in August Equal to or Larger Than in July—Prices Steady

RENEWED interest in the pig iron market is noted in most districts, with melters more active for fourth quarter. August shipments were equal to or larger than those of July, while sales for the month probably topped those of July, according to reports from leading producers. Cleveland furnace interests booked 22,000 tons during the week. Pittsburgh reports larger sales, including one lot of 3500 tons of foundry iron and 3000 tons of basic. Included in the sales aggregate of 12,000 tons in the New York district is 5000 tons for plants of the General Electric Co. Buffalo furnaces are doing a much larger business in eastern districts. Prices are steady. Sales price averages for bessemer and basic compiled by one company show no change in three months.

PITTSBURGH, Sept. 3.—New pig iron business is showing definite improvement, occasional large tonnages being scattered among the usual small orders. Fairly active buying in the latter part of August brought the month's business close to that of July, and one leading interest report's August substantially ahead of July. The largest of recent orders included 3500 tons of foundry iron for a local consumer, distributed among several furnaces, and an order for 3000 tons of basic for an outside user. August shipments for most producers equalled or bettered their July tonnage. Some pressure prevails for delivery in instances where melters stocks are limited. Prices continue steady, no shading being noted on recent business from the current valley quotations of $18.50 for No. 2 foundry and basic and $19 for bessemer and malleable, except in this district where Pittsburgh furnace prices of 50 cents over the valley level prevail. Average prices of pig iron for August were unchanged from July and June at $19 for bessemer and $18.50 for basic, according to W. P. Snyder & Co.

Boston, Sept. 3.—Pig iron sales in past week totaled about 10,000 tons. Nearly one-half was placed with Mystic Iron Works, while a good portion went to southern furnaces. The total tonnage was almost exclusively for fourth quarter. Since last October Mystic has been shipping iron at the rate of 3000 to 5000 tons monthly in excess of production, and during that period reduced stocks some 40,000 tons. Furthermore, it is estimated, Mystic now is delivering between 15,000 and 20,000 tons annually by truck alone, no small portion being moved to points as far away as 45 miles. While Buffalo furnaces are quoting $18, base, furnace, it is intimated as low as $17 can be done. Mystic's prices are firm, nearly 5000 tons of No. 2X and No. 1X bringing $20 to $21.75, according to freight. Some India iron has brought $21.75 to $22, on dock, duty paid.

New York, Sept. 3.—Pig iron sales in the past week aggregated 12.000 tons, including approximately 5000 tons for various plants of the General Electric Co. While new inquiry is not large, consumers are more active in feeling out the market for fourth quarter. The price trend is toward $18, base, Buffalo, with increasing tonnage placed at this figure. Southern iron is stronger, a fair tonnage being booked at $14, base, Birmingham.

Buffalo, Sept. 3.—Producers look for more pig iron tonnage to be placed the first half of this month than they have booked in any like period this quarter. Inquiry and private negotiations for tonnage point to heavy covering. Some leading interests claim to be asking $18.50, base, furnace, in the East on small lots, and say they will quote $18 only on largest inquiry. August saw a considerable addition to furnace stocks here. Sales were fairly good during the past week.

Cleveland, Sept. 3.—Pig iron sales totaled 22,200 tons in the past week, for furnace interests with headquarters in Cleveland. One of the Cleveland producers whose steelworks are taking most of its pig iron is out of the merchant market for the remainder of the year, and the other interest with steelworks connections is booking conservatively. This company is not meeting competition from southern and other furnaces in outside territory, and continues to quote $19, base, furnace, for local delivery, and $18.50, base, furnace, for outside. August shipments by all producers here slightly exceeded those of July, and stocks have been reduced.

Chicago, Sept. 3.—The northern pig iron market shows little effects of the recent sales activity in southern iron in this territory. More southern iron tonnage has been booked on the basis of $12.50, base, or $18.51, delivered in the Chicago district, but the southern quotations are stiffening. August shipments of northern iron gained slightly over July deliveries.

A number of sales of southern iron were closed during the week in northern and central Illinois on the basis of $13.50. Most buyers in this district interested in southern iron have closed for their requirements for the remainder of the year. One Federal furnace resumed operations Monday, making five of six available merchant furnaces active. One Iroquois furnace in South Chicago still is down for repairs. Silvery iron sales closed recently total 900 to 1000 tons.

Cincinnati, Sept. 3.—Sales of pig iron in this district the past week were approximately 4000 tons, including 1200 tons of southern iron. The southern iron was taken at $14, base, Birmingham. The southern market appears firmer, following a report that one furnace refused $13.50 on a fair

(*Concluded on Page* 627)

Pig Iron Prices

Per Gross Ton

Bessemer, valley furnace	$19.00
Bessemer, del. Pittsburgh	20.76
Basic, valley furnace	18.50
Basic, Pitts. dist. fur.	19.00
*Basic, del. Pittsburgh	19.63 to 20.13
Basic, Buffalo furnace	18.50
Basic, del. eastern Pa.	19.85 to 20.76
Malleable, valley furnace	19.00
Malleable, Pitts. dist. fur.	19.50
*Malleable, del. Pittsburgh	20.13 to 20.63
Malleable, Cleve. fur. for local del.	19.00
Malleable, Chicago furnace	20.00
Malleable, Buffalo furnace	20.00
Malleable, del. eastern Pa.	21.76 to 22.90
Malleable, Granite City fur.	20.00
No. 1 foundry, Chicago furnace	20.50
No. 1X, Eastern del., Phila.	22.76
No. 1X, Buffalo furnace	21.00
No. 2 foundry, valley furnace	18.50
No. 2 fdy., Pitts. dist. fur.	19.00
*No. 2 foundry, del. Pittsburgh	18.63 to 20.13
No. 2 plain, Buffalo furnace	19.50
No. 2 foundry, Chicago furnace	20.00
No. 2 fdy. Cleve. fur. for local del.	19.00
No. 2 fdy., Granite City	19.50 to 20.00
No. 2 plain, del., Phila	21.76
No. 2 plain, Virginia furnace	19.50
No. 2 plain, Buffalo, del. Boston	21.91
No. 2 plain, N. J., tidewater	20.78 to 21.78
No. 2 Alabama, Bir. base	13.50 to 14.50
No. 2 Tenn., Birmingham base	14.00 to 14.50
No. 2 Tenn., del. Cincinnati	17.69 to 18.19
No. 2 Alabama, del. Cincinnati	17.69 to 18.19
No. 2 Alabama, del., Cleveland	20.51 to 21.01
No. 2 Alabama, del., Chicago	18.51 to 20.01
No. 2 Alabama, del. St. Louis	17.42 to 18.42
No. 2 Ala., Phila., dock dely.	19.75 to 21.01
No. 2 Ala., Balt., dock dely.	19.50 to 20.76
No. 2 Ala., Boston, dock dely.	19.75 to 20.25
No. 2X, east, N. J., tidewater	21.28 to 22.28
No. 2X, eastern, del. Phila.	22.26
No. 2X, foundry, Buffalo furnace	20.00
No. 2X, Buffalo, del. Boston	21.78
No. 2X, Virginia furnace	19.50 to 20.00
Gray forge, Pitts. dist. fur.	18.50
*Gray forge, del. Pittsburgh	19.13 to 19.63
Low phos., standard, valley	27.00
Low phos., standard, Phila.	24.26 to 24.76
Low phos., copper bearing fur.	23.00 to 23.50
Charcoal, Superior, del., Chicago	27.04

*Freight from Pittsburgh district furnace to points in Pittsburgh district 63c, 76c and $1.13 per ton.

CANADIAN PRICES

No. 1 foundry, del. Toronto	$24.60
No. 1 foundry, del. Montreal	26.00
No. 2 foundry, del. Toronto	24.10
No. 2 foundry, del. Montreal	25.50
Malleable, del. Toronto	24.60
Malleable, del. Montreal	26.00
Basic, del. Montreal	24.50

Silvery iron Jackson county, O., furnaces in per cents: 5—$22; 6—$23; 7—$24; 8—$25; 9—$26; 10—$28; 11—$30; 12—$32; 13—$34.

Bessemer ferrosilicon, Jackson county, O., furnaces, in per cents: 10—$30; 11—$32; 12—$34; 13—$36; 14—$38; 15—$41; 16—$43.50; 17—$46.50.

Coke

Furnace Fuel Market Quieter, and Prices Easier — Foundry Demand Steady, Prices Firm

SEASONAL quietness is noted in the market for beehive furnace coke and spot prices are easier at $2.65 to $2.75. Demand for foundry coke is steady, and prices are firm. Shipments of beehive and by-product foundry coke in August equaled those of July, and in some districts show indications of improving. Little change is noted in demand for heating coke.

Pittsburgh, Sept. 3.—Beehive coke is quiet, especially in spot sales of furnace grades. Although some producers continue to hold for $2.75 for standard fuel, sales are made occasionally at $2.65. Distress lots and fuel below standard are sold at less. Sellers are regulating production in anticipation of increasing activity in the next 60 days. Producers are taking a firmer stand on contract tonnages for delivery over several months, and generally are unwilling to take business at current spot quotations. Foundry coke is steady, as regards prices and demand. Heating fuel shows little change in activity.

Production of coke in the Connellsville region for the week ended Aug. 24 was 95,060 tons, compared with 96,725 tons the preceding week and 31,230 tons a year ago.

Boston, Sept. 3.—Increasing demand from foundries for coke has caused a slight stepping up in operations at local ovens. Prospects are that there will be fairly good business through the next three or four weeks. Prices are steady.

Chicago, Sept. 3.—By-product foundry coke shipments in August were nearly equal to those of July. Demand from jobbing foundries still is irregular.

St. Louis, Sept. 3.—Purchasing of metallurgical coke in this district is in good volume, and consumption continues unusually large for this season. Preliminary figures of the by-product interests indicate total August shipments will be the largest for that month in recent years. Stocks of foundry and furnace coke in consumers hands are slightly below normal, while reserve supplies of the by-product ovens are about average for Sept. 1. Prices are steady.

Cincinnati, Sept. 3.—Specifications for by-product coke in this district continue at a good rate, but no new sales of importance were noted during the week. Prices are steady.

Birmingham, Ala., Sept. 3.—Steady shipment of foundry coke is reported, with prospects of this condition being maintained for many months. Foundry coke continues $5, base Birmingham.

Coke Prices

Prices per Net Ton

Beehive Ovens	
Connellsville furnace	$2.65 to 2.75
Connellsville foundry	3.75 to 4.85
New River foundry	6.00 to 6.50
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.75
By-Product Foundry	
Newark, N. J., del.	$9.00 to 9.40
Chicago ovens	8.00
New England del.	11.00
St. Louis del.	9.00
Birmingham, ovens	5.00
Indianapolis, del.	8.25
Ashland, Ky., ov., Connell. basis	6.50
Portsmouth, O., ov., Connell. basis	6.50
Buffalo ovens	8.75
Detroit, ovens	9.00
Philadelphia, del.	9.00

Ferroalloys

Shipments Holding Up to Record Levels—Prices Steady

Pittsburgh, Sept. 3.—Shipments of most grades of ferroalloys continue substantially ahead of the rate at this time in preceding years. Specifications suffered practically no decrease during August in ferromanganese and spiegeleisen, although the movement of some special ferroalloys has tapered. Shipments of the former two grades so far this year are at a record level for practically all producers. A fair volume of spot business is being received for spiegeleisen, with the market firm at $34. Such business is confined usually to carloads. Spot ferromanganese is quiet. Ferrotungsten is steady at $1.45 to $1.50.

New York, Sept. 3.—Spot demand for spiegeleisen is showing little variation, with prices steady at $34, furnace, on domestic material, 19 to 21 per cent in carload lots. English spiegeleisen, 26 to 28 per cent, is holding nominally at $36.50, duty paid, tidewater, with little offered. Shipments of ferromanganese also are steady and the market is unchanged at $105, duty paid.

Chicago, Sept. 3.—Less-than-carload sales of ferroalloys are active in this district, and August shipments have shown an increase over last year. Prices remain unchanged at $105, seaboard, or $112.56, delivered, for ferromanganese, and $83.50 to $88.50 for 50 per cent ferrosilicon. The price range for spiegeleisen is $32 to $34, base, eastern furnace, the latter price applying for carload orders.

City Metals Refining Co., Detroit, has increased capital from $20,000 to $35,000.

Bolts, Nuts, Rivets

Summer Recession Only Moderate and Present Demand Good

NUT AND BOLT PRICES, PAGE 612

Pittsburgh, Sept. 3.—Bolt, nut and rivet producers passed through the usual slow August period with only a moderate recession in business and are experiencing better than usual seasonal demand. Buying is well distributed, with jobbers turning stocks in good volume. Demand from railroads is slightly more active, and activity in railroad equipment is contributing a substantial tonnage. Operations are seasonally high at 70 to 80 per cent. The market continues 60 to 70 off for bolts and nuts, and 3.10c, Pittsburgh, for large rivets.

Cleveland, Sept. 3.—So far can be ascertained tonnage in nuts, bolts and rivets for August about equals that of July. The total is much lower than in June or May, automotive buying being slack. A pickup in September is expected and already early releases are being made. Jobbers appear to be turning over their stocks and small repeat orders are numerous. Miscellaneous manufacturers are buying fairly well, so that nut and bolt operations are sustained at about a 70 per cent average. Rivet orders from boiler and other plate fabricating shops are increasing. Buyers exert much pressure for lower prices than $3.10 but so far no sales at lower figures are reported.

Chicago, Sept. 3.—Active fourth quarter contracting for bolts, nuts and rivets will be under way by the latter part of the week. Specifications are sufficient to maintain operations at 65 to 70 per cent in the West. Bolts and nuts are 60 to 70 per cent off list. Wrought washers are 6.75c, Chicago. Lock washers are 85 per cent off to consumers, and 85 and 5 per cent off to dealers and jobbers.

Ferroalloy Prices

(In dollars, except ferrochrome)

Ferromanganese, 78 to 82 per cent, tidewater, duty paid	$105.00
Ferromanganese, del. Pittsburgh	109.79
Spiegeleisen, 19 to 21 per cent, domestic furnace, spot†	32.00 to 34.00
*Ferrosilicon, 50 per cent, freight allowed, carloads	83.50
*Do., less carload	88.50
Do., 75 per cent	130.00 to 150.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. per lb. con., del.	11.00
Do., for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	1.45 to 1.50
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium carload producer's plant, net ton	160.00
Do., one ton to carload	170.00
Ferrophosphorus, per ton, carload 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23-25% f.o.b. Anniston, Ala. (24 per cent)	122.50

†Quantity diff. apply on 100 tons and over.
*These prices contract, spot $5 higher.

Scrap

Better Supply Eases Price Rise —Strength Remains Feature— Dealers Accumulating Tonnage

STRENGTH continues to feature the scrap market but release of tonnage at the higher prices has stopped the advance in some grades. Dealers are buying more freely, for contract requirements and for accumulation, indicating confidence in future conditions in the iron and steel scrap market.

Chicago, Sept. 3.—Steady strengthening of the iron and steel scrap market has been arrested, apparently as a result of heavier selling and releases by producers. The fundamental tone, nevertheless, remains strong. Consumer price resistance is more marked than a week ago. Dealers have been obliged to pay more than $15.50 for melting steel for consumer coverage. A fairly strong short interest prevails and possibly lower steelworks operations this month are being discounted. Increased difficulty is experienced in the buying of rail crops, the 2-foot and under grade being quoted by most dealers at a top of $20.50, delivered in the Chicago switching district. Several sellers are asking higher prices for some cast grades, although gray iron foundries are operating irregularly.

Buffalo, Sept. 3.—With more placing of contracts for No. 1 heavy melting steel in prospect, dealers offer $17.75 for material to meet the most rigid requirements. Steelworks are asking for large deliveries on recent contracts. A district melter has bought a good sized tonnage of malleable at $18.50. Another purchased

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross tons delivered to consumers, except where otherwise stated

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	10.50 to 13.50
Boston, dealers	12.00 to 12.50
Boston, No. 2	10.00 to 10.50
Buffalo, No. 1	16.50 to 18.00
Buffalo, No. 2	14.75 to 15.00
Chicago	15.25 to 15.75
Cincinnati, deal.	14.25 to 14.75
Cleveland, No. 1	16.50 to 17.00
Cleveland, No. 2	14.25 to 14.75
Detroit, No. 1 deal.	14.25 to 14.75
Detroit, No. 2 deal.	11.50 to 12.00
East Pa., del. mill	17.00
N. Y., deal. R. R.	12.50 to 13.35
N. Y., deal. yd.	8.25 to 9.25
Pittsburgh, No. 1	18.50 to 19.50
St. Louis, No. 1	14.75 to 15.25
Valleys, No. 1	18.50 to 19.00

COMPRESSED SHEETS

Buffalo (dealers)	14.75 to 15.00
Chicago	13.50 to 14.00
Cleveland	15.50 to 16.00
Detroit, dealers	14.00 to 14.25
E. Pa. new mat.	16.00
Pittsburgh	18.50 to 19.00
Valleys	18.00 to 18.50

BUNDLED SHEETS

Buffalo	12.00 to 12.50
Cincinnati, deal.	11.25 to 11.75
Cleveland	12.50 to 13.00
Eastern Pa.	11.50
Pittsburgh	16.50 to 17.00
St. Louis	10.50 to 11.00

SHEET CLIPPINGS LOOSE

Chicago	8.75 to 9.25
Cincinnati	9.00 to 9.50
Detroit, dealers	9.50 to 10.00
St. Louis	10.50 to 11.00

STEEL RAILS, SHORT

Birmingham	14.00 to 15.00
Boston	10.50 to 12.50
Buffalo	19.25 to 19.75
Chicago (3 feet)	19.00 to 19.50
Chicago, 2 ft. and under	20.00 to 20.50
Cincinnati, deal.	18.50 to 19.00
Detroit, dealers	17.00 to 17.50
Pittsburgh (3 ft.)	20.00 to 21.00
Pittsburgh, 2 ft. and under	21.00 to 22.00
St. Louis	18.00 to 18.50

STOVE PLATE

Birmingham	12.50 to 13.00
Boston consumers	11.00 to 11.50
Buffalo	12.75 to 13.25
Chicago, net	11.50 to 12.00
Cinn., deal., net	9.25 to 9.75
Detroit, net, deal.	9.50 to 10.00
Eastern Pa.	12.00
N. Y., deal., mill.	8.00 to 8.50
St. Louis	12.50 to 13.00

COUPLERS, SPRINGS

Buffalo	19.25 to 19.75
Chicago	17.00 to 17.50
Eastern Pa.	21.50
Pittsburgh	22.00 to 22.50
St. Louis	15.75 to 16.25

ANGLE BARS—STEEL

Chicago	17.25 to 17.75
St. Louis	15.25 to 15.75

LOW PHOSPHORUS

Buffalo, billets and bloom crops	19.50 to 20.00
Cleve. billet and bloom crops	17.50 to 18.00
Eastern Pa.	21.00 to 22.00
Pitts. billet and bloom crops	23.00 to 24.00
Pitts., sheet bar crops	22.00 to 22.50

FROGS, SWITCHES, GUARDS

Chicago	16.25 to 16.75
St. Louis	17.00 to 17.50

SHOVELING STEEL

Chicago	15.25 to 15.75
Cleveland	11.75 to 12.25
Detroit, dealers	9.00 to 9.50
St. Louis	14.75 to 15.25

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	11.00 to 12.00
Boston, dealers	11.00 to 11.50
Buffalo, No. 1	13.50 to 14.00
Buffalo, No. 2	16.00 to 16.50
Chicago, No. 1	15.75 to 16.25
Chicago, No. 2	15.25 to 15.75
Cinn., No. 2	14.25 to 14.75
Eastern Pa.	16.00 to 16.50
N. Y., No. 1 deal.	12.00 to 12.50
Pittsburgh, No. 2	18.50 to 19.50
St. Louis, No. 1	13.75 to 14.25
St. Louis, No. 2	15.00 to 15.50

SPECIFICATION PIPE

Boston	9.75 to 10.00
Eastern Pa.	15.00
New York, deal.	10.25 to 10.75

BUSHELING

Buffalo, No. 1	14.75 to 15.00
Chicago, No. 1	13.25 to 13.75
Cinn., No. 1 deal.	11.00 to 11.25
Cinn., No. 2	7.00 to 7.50
Cleveland, No. 1	14.50 to 15.00
Cleveland, No. 2	10.50 to 10.75
Detroit, No. 1 deal.	13.00 to 13.50
St. Louis, No. 1	10.00 to 10.50
Valleys, new No. 1	16.00 to 16.50

MACHINE SHOP TURNINGS

Birmingham	7.00 to 8.00
Boston	7.00 to 7.50
Buffalo	9.00 to 9.50
Chicago	7.50 to 8.00
Cincinnati, deal.	8.50 to 9.00
Cleveland	9.75 to 10.25
Detroit	8.75 to 9.25
Eastern Pa.	12.50
New York, deal.	7.50 to 8.00
Pittsburgh	12.50 to 13.00
St. Louis	7.50 to 8.00
Valleys	11.00 to 11.25

MIXED BORINGS, TURNINGS
For blast furnace use

Boston, dealers	6.00 to 6.25
Buffalo	12.00 to 12.50
Cincinnati, deal.	9.25 to 9.75
Cleveland	10.50 to 10.75
Detroit, dealers	9.50 to 10.00
Eastern Pa.	11.00
New York, deal.	7.00 to 7.25
Pittsburgh	12.50 to 13.00

CAST IRON BORINGS

Birmingham, chem.	13.00 to 13.50
Birmingham, plain	7.00 to 8.00
Boston chem.	9.75 to 10.00
Boston, dealers	6.50 to 6.75
Buffalo	12.00 to 12.50
Chicago	10.25 to 10.75
Cincinnati, deal.	9.25 to 9.75
Cleveland	10.50 to 10.75
Detroit, dealers	8.75 to 9.25
Eastern Pa.	11.75 to 12.00
Eastern Pa., chem.	14.50
New York, deal.	7.00 to 7.75
Pittsburgh	12.50 to 13.00
St. Louis	9.50 to 10.00

PIPE AND FLUES

Cincinnati, deal.	9.00 to 9.50

RAILROAD GRATE BARS

Buffalo	12.25 to 12.75
Chicago, net	11.50 to 12.00
Cincinnati	10.00 to 10.50
Eastern Pa.	12.00 to 12.50
New York, deal.	8.75 to 9.25
St. Louis	13.00 to 13.50

FORGE FLASHINGS

Boston dealers	10.25 to 10.50
Buffalo	13.75 to 14.25
Cleve. over 10 in.	13.50 to 14.00
Detroit	13.00 to 13.50

FORGE SCRAP

Boston, dealers	9.00 to 9.25
Chicago	18.00 to 18.50
Eastern Pa.	14.00

ARCH BARS AND TRANSOMS

Chicago, net	21.00 to 21.50
St. Louis	21.50 to 22.00

Iron, Steel Works Scrap

AXLE TURNINGS

Boston, deal.	6.75 to 7.00
Buffalo	14.25 to 14.75
Chicago, steelworks	12.50 to 13.00
Cleveland	14.00 to 14.50
Eastern Pa.	15.00
Pittsburgh	16.50 to 17.00
St. Louis	10.00 to 10.50

STEEL CAR AXLES

Birmingham	17.00 to 18.00
Boston, ship point	18.00 to 18.50
Buffalo	19.50 to 20.00
Chicago	19.05 to 19.60
Eastern Pa.	23.00 to 23.50
Pittsburgh	21.00 to 22.00
St. Louis	19.50 to 20.00

SHAFTING

Boston, ship point	14.00 to 14.75
Chicago	17.35 to 17.90
Eastern Pa.	19.00 to 20.00
New York, deal.	14.00 to 14.50
St. Louis	18.50 to 19.00

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	11.50 to 12.50
Boston, iron	14.00 to 14.50
Buffalo, iron	14.00 to 14.50
Buffalo, steel	19.25 to 19.75
Chicago, iron	14.00 to 14.50
Chi., rolled steel	18.50 to 19.00
Cincinnati	12.50 to 13.00
Eastern Pa. cast.	16.50 to 17.00
Eastern Pa., rolled	20.50 to 21.50
N. Y., iron, deal	12.00 to 12.50
Pittsburgh, iron	16.50 to 17.00
Pittsburgh, steel	22.00 to 22.50
St. Louis, iron	15.00 to 15.50
St. Louis, steel	19.50 to 20.00

No. 1 CAST SCRAP

Birmingham, cup.	13.00 to 14.00
Buffalo	15.75 to 16.25
Boston, textile	14.00 to 14.50
Chicago, mach.	16.80 to 17.35
Chicago, railroad	15.10 to 15.65
Chicago, agri.	15.15 to 15.70
Cincinnati, Mach. cupolas, gross	19.00 to 19.50
Cleveland, cupola	15.75 to 16.25
Detroit, net, deal.	12.00 to 12.50
East Pa., cupola	17.00
N. Y., cup., deal.	12.50 to 13.00
N. Y., del. local foundries	17.00
Pittsburgh, cupola	15.00 to 16.00
San. Fran., del.	13.50 to 14.00
Seattle	14.50 to 14.75
St. L. No. 1 mach.	15.25 to 15.75
St. Louis, No. 1	14.50 to 15.00

HEAVY CAST

Boston	10.50 to 11.00
Buffalo, breakable	12.75 to 13.25
Cleve., breakable	12.50 to 12.75
Detroit, auto, net dealers	12.00 to 13.00
Detroit, break. deal	9.00 to 9.50
Eastern Pa.	14.50 to 15.00
New York, deal.	11.50 to 12.00
Pittsburgh	13.00 to 13.50

MALLEABLE

Boston, railroad	18.50 to 19.00
Buffalo	18.00 to 18.50
Chicago, agri.	15.50 to 16.00
Chicago, railroad	17.00 to 17.50
Cinn., R. R., deal	15.25 to 15.75
Cinn., agri., deal.	14.25 to 14.75
Cleveland, rail.	17.50 to 18.00
Detroit auto deal.	15.25 to 15.75
St. Louis, rail	16.00 to 16.50

Miscellaneous Scrap

RAILS FOR ROLLING

5 feet and over

Birmingham	13.50 to 14.50
Boston	13.00 to 13.50
Buffalo	16.50 to 17.00
Chicago	17.75 to 18.25
Eastern Pa.	18.00 to 18.50
New York	12.75 to 13.25
St. Louis	17.25 to 17.75

LOCOMOTIVE TIRES

Chicago, cut	18.50 to 19.00
St. Louis, No. 1	15.50 to 16.00

LOW PHOS. PUNCHINGS

Chicago	16.75 to 17.25
Pittsburgh	20.50 to 21.00

short steel rails at $19.50. Some sales of cast iron borings and mixed borings and turnings have been made at $12.50.

Boston Sept. 3.—The situation has changed little in iron and steel scrap. There is a limited amount of material on hand. Indications, however, are such that brokers and dealers anticipate a stepping up in shipments during the present month. The only price change was a slight decline in heavy melting steel and forge flashings.

New York, Sept. 3.—Scrap dealers' buying prices here are unchanged, with recent trading reflecting the pre-holiday lull. Dealers generally look for a substantial pick-up in new business over the next two or three weeks. Shipments of melting steel continue to be held up in the case of two large eastern consumers.

Philadelphia, Sept. 3.—Good miscellaneous demand has appeared in the iron and steel scrap market. Several lots of breakable cast have been sold at $15, delivered and $14.50 now is being offered. Borings are advancing and some sales have been made at $11.75. A premium of about 50 cents now is being paid for short turnings, compared with machine shop turnings.

Pittsburgh, Sept. 3.—Conditions in iron and steel scrap are unchanged, consumers and dealers marking time. Quiet common to period before closing of railroad lists is expected to end shortly. Some melters are well supplied despite heavy consumption. Shipments in general are moving freely, though one embargo is in effect. Supplies are slightly easier but not sufficiently as to weaken prices. Heavy melting steel is largely nominal at $18.50 to $19.50 on the basis of last sales.

Cleveland, Sept. 3.—Iron and steel scrap is generally quiet. A sale of strictly No. 1 steel has been made to a local mill at $18, delivered. The leading consumer has purchased a tonnage of lighter grade steel at $15.90. Dealers are anxious to secure supplies for shipment against contracts, offering up to $17.50 for select grades. Compressed sheets are somewhat easier and dealers are now offering no more than $16. Blast furnace scrap continues weak, now being quoted slightly lower at $10.50 to $10.75.

Cincinnati, Sept. 3.—Movement of scrap the past week was unchanged and prices were continued without alteration. A pre-holiday quiet prevailed and no large shipments were reported.

Detroit, Sept. 3.—Heavier grades of scrap have shown weakness and prices have yielded fractionally. Short turnings have declined somewhat but machine shop turnings are holding their position. Weakness is considered temporary and seasonal. An upturn the middle of September is looked for.

St. Louis, Sept. 3.—Iron and steel scrap, particularly material for steel mills, has gained further in strength during the past several days. Users are beginning to feel more acutely the stress of scarcity, and despite their dislike of meeting dealers' terms, are obliged to pay current prices for requisite tonnages. Melters are holding purchases to requirements. Dealers are trading briskly among themselves, either endeavoring to acquire material to deliver on contracts, or accumulating in anticipation of higher prices. As has been the case for some time, it is difficult to secure desired grades.

Birmingham, Ala., Sept. 3.—Steel scrap continues active, with quotations holding firm. Other items are slow and prices weak. Heavy melting steel is moving fairly well, though several open-hearth furnaces are idle. For best quality heavy melting steel $13.50 is still being asked.

Toronto, Ont., Sept. 3.—As a result of continued activity demand for iron and steel scrap is more active. Mills are placing orders, but mostly in small tonnage for immediate requirements. Foundries and other consumers of iron scrap are showing interest and are buying more extensively for spot needs. Inquiries for last quarter are making their appearance. Prices are unchanged.

Canadian Scrap

Dealers' Buying Prices

MONTREAL

Per Gross Ton

Iron Axles	$22.00
Steel axles	20.00
Car wheels	16.00
Stove plate	13.00
Wrought pipe	6.00
Turnings	6.50
Heavy melting steel	8.00

TORONTO

Steel axles	15.00
Iron axles	17.00
Heavy melting steel	9.50
Turnings	7.50
No. 1 mach. cast (net)	16.00
Malleable (net)	12.50

Semifinished Steel

Shipments Continue Heavy—Spot Market Is Quiet

SEMIFINISHED STEEL PRICES, PAGE 612

Pittsburgh, Sept. 3.—Specifications for semifinished material, particularly sheet bars, continue heavy. There is little activity in the open market. August shipments showed little change from the July total, and compared favorably with the figure a year ago. Automotive requirements for forging billets are fairly steady, with prospects good for an improvement later in September. The market is steady at $40 minimum. Rerolling billets, sheet bars and slabs are $35, although this price is largely nominal. Wire rods retain most of their recent activity, with the $42 price firm.

Chicago, Sept. 3.—All consumers of semifinished material have low supplies. The continued demand for semifinished, and probable needs of detached finishing mills next month, are expected to help maintain a higher rate of steel ingot production for the semifinished producers than their own rolling mill requirements might justify. Commercial or rerolling billets, 4 x 4-inch base, remain $37, Chicago.

Youngstown, O., Sept. 3.—With the making of steel continuing this week at 90 per cent of open-hearth capacity in this district, the movement of semifinished products continues satisfactory to producers. Sheet bars, billets and slabs are firm at $35, Pittsburgh and Youngstown, while wire rods are $42, Pittsburgh and Cleveland.

Philadelphia, Sept. 3.—Several moderate tonnage of billets were sold here in the past week at $35, base, Pittsburgh, for rerollers and $40 for forging quality.

Foundry Equipment Sales Are at High Level

The continuance of excellent business conditions in the foundry machinery field for the remainder of this year was predicted at the forty-eighth meeting of the Foundry Equipment Manufacturers association held at the Hotel Van Curler, Schenectady, N. Y., Aug. 29-30. It was pointed out that the index of gross orders for foundry equipment for July, 219.3, was the highest since August, 1928.

Reports were presented at the meeting by S. T. Johnston, S. Obermayer Co., Chicago; M. J. Evans, Whiting Corp., Harvey, Ill.; and H. Cole Estep, secretary-treasurer of the association, covering opportunities in Europe for the promotion of export trade in American foundry equipment, based on observations at the recent International Foundrymen's congress in London.

E. O. Shreve, head of the industrial division, General Electric Co., and J. P. Jones, manager of machinery sales, of the same company, entertained the delegates during the meeting. An inspection tour of the General Electric research laboratories took place Friday morning, followed by luncheon at the company's works at which Mr. Shreve discussed the sales problems of machinery manufacturers.

At the association's luncheon Aug. 29, Dr. A. W. Hull, assistant director of research, General Electric Co., outlined some of the research problems now confronting his organization with special reference to the application of vacuum tubes to power circuits.

The members of the association presented past president S. C. Vessy, W. W. Sly Mfg. Co., Cleveland, with a golf bag in recognition of his services to the organization. The next meeting will be held in New York, Nov. 19.

New Bethlehem Branches

Philadelphia, Sept. 3.—Branch offices have been established by the Bethlehem Steel Co. at York and Wilkes-Barre, Pa. E. A. Mercner and J. E. Murphy have been appointed resident agents, respectively.

Industrial Equipment Corp., Detroit, has changed its name to General Industrial Equipment Corp.

Bars

Slight Increase in Specifications Indicates Return to Better Conditions—Price Is Steady

MARKETS, both east and west, feel a quickening in demand for steel bars. At Chicago backlogs are beginning to increase after a period of decline. At Pittsburgh incoming business is heavier, equaling that of a year ago but less than at midyear. Much of current business is in small lots for immediate requirements. Prices have not yielded.

BAR PRICES, PAGE 611

Chicago, Sept. 3.—The bar market is featured by a moderate pick-up in mill orders for alloy steel bars. Backlogs are starting to accumulate after the recent declines. Alloy bar mill operations remain slightly above 80 per cent. Orders for soft steel bars are fairly well diversified, and specifications also gained in the week just closed, one producer reporting the best specifications in several weeks. This rate is contrasted with the decline in specifications during recent weeks. Possibilites are encouraging for an increase of tractor and implement works specifications in the next 30 days. Bar shipments are promised in three to six weeks, and operations on the whole show a net decline of a few points.

Alloy steel bar prices are unchanged. Soft steel bars are quoted at 2.05c, Chicago, base, while the range on bar iron now is 2.05c to 2.10c, Chicago, instead of 2.05c to 2.15c. It is indicated finished steel producers will begin closing fourth quarter contracts shortly after Sept. 10.

Pittsburgh, Sept. 3.—Specifications for hot-rolled merchant bars expanded moderately during the latter part of August, with the result incoming business for most producers showed an improvement over the rate earlier in the month. This is in contrast to the steady decline for the preceding four to six weeks. Incoming business still is substantially below the rate earlier in third quarter but makes a favorable comparison with conditions a year ago. Restricted automotive activity has curtailed requirements for both hot and cold-rolled bars, and there appear no prospects of an immediate large upturn in automobile building. Demand from other sources is fairly steady although commitments are restricted largely to small-lot orders for current requirements. Purchasers show little interest in fourth quarter requirements and producers are not active in soliciting such business. No intimations are heard of variations for that period from the current 1.95c, Pittsburgh, price.

Cleveland, Sept. 3.—Increased automotive specifications in the closing days of August resulted in an increase of 10 per cent over July in the month's specifications of some makers of soft steel bars. The gain over last August was almost as great. Some makers, however, fell short of July. Bolt, nut and rivet specifications are light; those from the general manufacturing trade fair considering the season. Deliveries generally are easier. Local mills quote 1.90c, Cleveland, and outside mills 1.95c, delivered, Cleveland, or 1.95c, Pittsburgh, in outlying territory.

Philadelphia, Sept. 3.—Steel bar demand is good here with mills promising shipment in one to three weeks. Prices are firm at 1.95c to 2.00c, base, Pittsburgh.

Surveys Site at Detroit

Engineers of the American Rolling Mill Co., Middletown, O., are making a survey of the 200 acres which the company has under option on the Detroit river adjacent to Wyandotte, Mich., just south of Detroit. For about two years the company has been studying production costs at that point, but final decision is not expected to be made for several months.

Sheet Wages Unchanged

The bimonthly examination of sheet prices shows a wage setting rate of $3.05 per 100 pounds, unchanged from the preceding two months. Sheet and tin mill wages will continue 27 per cent above base for September and October.

The vehicular tunnel from Detroit to Windsor, Ont., is half completed.

Plates

Business Shows Signs of Moderating, While Mills Continue High Operating Rate

PLATE orders are smaller and less urgent, but the volume is satisfactory to the majority of mill interests, in view of the heavy backlogs which will sustain operations at the present high rate at least through September. Domestic tank plate inquiries at Chicago total 14,000 tons, and 2500 tons are wanted for export. Prices are steady.

PLATE PRICES, PAGE 611

Chicago, Sept. 3.—Domestic tank plate inquiry, largely for the southwestern oil country, stands at about 14,000 tons, including 2500 tons added during the week. A western builder has taken out 750 tons for fabrication of export orders, and about 2500 tons additional for export is in the market. Less than 1000 tons of tank plates in miscellaneous lots was closed during the week. Small tank makers in the St. Louis district are reported to be operating at capacity. Deliveries are improving to the extent that shipments on certain sections and sizes are being promised in four to six weeks. The 2.05c, Chicago, price applies except for tonnage differentials.

New York, Sept. 3.—Plate consumers are beginning to sound out the market for fourth quarter. Leading trade interests believe there will be little change in prices for that period. Three to four weeks continue the rule on deliveries. Fabricated plate work is light.

Pittsburgh, Sept. 3.—Plate producers reduced their backlogs only slightly during August and are in a favorable position to uphold operations during the next six to eight weeks. Freight car, line pipe and barge work still are sustaining influences in demand, although in freight cars and barge work there is little additional large business in prospect. Recent barge awards require 500 tons. Plates continue 1.95c, Pittsburgh.

Philadelphia, Sept. 3.—Plate demand continues to show vitality. Some eastern mills can make prompt shipment, while others want one to three weeks. Prices are firm at 2.05c to 2.15c, Coatesville.

Cleveland, Sept. 3.—While large lots of plates, either in orders or in inquiries, are lacking, the aggregate of small tonnage orders each week is surprisingly heavy. Many of these are carlots for boiler or tank shops. Fabricating shops likewise order small quantities. Customers manifest no interest in fourth quarter. The 1.95c, Pittsburgh price is holding.

CONTRACTS PLACED

750 tons, oil tank work for export, to Winkler Engineering Corp.

300 tons plates and shapes, three barges for

Fruin & Colnon Contracting Co., St. Louis, to Dravo Contracting Co.
200 tons, two cargo barges for Stewart Sand & Material Co., Kansas City, to Dravo Contracting Co.

CONTRACTS PENDING

10,000 tons, pipe-line, Everett, Wash. Western Pipe & Steel Co. low bidder.
1800 tons, pipe line improvement at Spokane. Bids Sept. 5.
200 tons, tainter gates for Seattle Diablo dam, Willamette Iron & Steel Works low bidders.

Stacey Engineering Co. Is Organized

Stacey Engineering Co., Columbus, O., a new Ohio corporation, has completed negotiations for acquiring the Stacey Bros. Gas Construction Co., Cincinnati, Connersville Blower Co., Connersville, Ind., and the Wilbraham-Green Blower Co., Pottstown, Pa., and will operate as a holding company. The merging companies have been manufacturers over many years, producing gas holders, exhausters, blowers, pumps and other equipment.

The new company is capitalized for $2,500,000 of 6 per cent preferred stock, 150,000 shares of class A common stock and 200,000 shares of class B common stock, none of which will be offered the public at this time.

Directors of the company are B. G. Dawes, Carmi A. Thompson, F. S. Heath, C. A. Ward, Wayne Stacey, William A. Miller and John T. Wilkin. B. G. Dawes, chairman of the board of the Pure Oil Co., is chairman of the board; Carmi A. Thompson, president; F. S. Heath, Wayne Stacey and John T. Wilkin, vice presidents; D. H. Mulloney, secretary, and C. A. Ward, treasurer. Home offices will be at Columbus, O., for the present.

Newton Moves Officials To Youngstown

In line with the Newton Steel Co.'s planned concentration of offices and officials at its Youngstown, O., headquarters in the First National Bank building, offices of C. B. Pollock, vice president in charge of operations, and J. D. Lewis, works auditor, have been removed there from Newton Falls, O. The remainder of the ninth floor of the bank building has been obtained for them with their assistants, clerks, etc. The company's new sheet plant at Monroe, Mich., is steadily nearing completion.

Empire Adds Furnaces

Empire Steel Corp., Mansfield, O., through W. H. Davey, president, has announced plans for two more open-hearth steel furnaces at Mansfield. The new furnaces are to be completed by Jan. 1. Present steelmaking capacity at Mansfield is 240,000 tons annually.

Pipe

Large Pipe Holds Interest—Prices in East Erratic—Carload Quotations Hold Firm

LARGE diameter pipe holds the center of the stage. Bronx, N. Y., ordered 1100 tons of 20 and 24-inch. Greeley, Colo., awarded two miles of 27-inch and Denver, three miles of 60 and 66-inch. Erie, Pa., will soon buy a 1¼-mile string of 72-inch. Several lots of 6 and 8-inch were closed. Eastern quotations are erratic. Carload prices firmly held.

PIPE PRICES, PAGE 612

Pittsburgh, Sept. 3.—Pipe makers are fairly well engaged, particularly in production of lapweld. Producers of this product still have fair backlogs as a result of recent orders for natural gas lines. Nothing further has developed in connection with pending work, although a large tonnage remains to be placed for prospective lines. A fair demand continues for buttweld pipe, with building activity running below the rate of a year ago. Little change is shown in demand for drill pipe and casing material from the oil field, with no particular change in the rate of drilling operations. Demand for mechanical tubing reflects reduced operations in the automotive industry, although tonnage is still seasonally large. A fair call still is being received for locomotive and boiler tubing.

New York, Sept. 3.—Cast pipe prices continue erratic. Foundries are active on the larger sizes but slowness in small sizes pulls production down to between 60 and 70 per cent. One foundry booked several hundred tons for export. The Bronx ordered 1100 tons of 20 and 24-inch from the United States Pipe & Foundry Co.

Buffalo, Sept. 3.—Iroquois Gas Co. here will take bids shortly for 4.2 miles of 6-inch and 16.3 miles of 8-inch pipe for extension of its gas system near Nunda, Silver Springs, Castile and Eagle, N. Y. Construction will start this autumn.

Erie, Pa., has received war department sanction of a proposal to lay 1¼ miles of 72-inch steel pipe for a new intake line of its water works system. Complaints will not be heard after Sept. 11, the war department indicated.

Cleveland, Sept. 3.—Orders for standard full weight merchant pipe from jobbers are numerous, although individually small. They usually comprise a single carload of 30 or 35 tons made up of 12 to 15 sizes. On rare occasions a single carload of a size will be ordered for shipment direct to the jobber's customer. Northern Ohio pipe mills are snowed under with oil and gas country orders for tubular products, and deliveries are indefinite.

Chicago, Sept. 3.—No definite improvement is shown in the pressure pipe market. Several small awards were placed through contractors in Wisconsin, Illinois, Indiana and Michigan, and a fair volume of carload business is reported. Greeley, Colo., awarded two more miles of 27-inch water pipe. Denver awarded three more miles of 60 and 66-inch concrete water pipe. Carload prices for 6 to 24-inch water pipe in this market are being maintained on the basis of $37 to $38, base, Birmingham.

The Chicago water works department is inquiring for about 100 tons of fittings and offsets.

Birmingham, Ala., Sept. 3.—Numerous small orders are being received by cast iron pressure pipe manufacturers and shipments are active. Quotations are being maintained at $38 on small and $37 on large lots, 6-inch and over sizes. Extensions to monocast, DeLavaud and other centrifugally cast iron pipe equipment still are being installed here, preponderance of demand being for machine-made products. Expectations are for steady trade until latter part of November, with a lull for 30 to 60 days and then a material improvement.

CONTRACTS PLACED

30,000 feet, 6 and 8-inch pipe, Dearborn, Mich., to American Cast Iron Pipe Co.
1100 tons, 20 and 24-inch, for the Bronx, N. Y., to United States Pipe & Foundry Co.
515 tons, 6 to 12-inch class B, improvement McKinley Hill district, Tacoma, Wash., to S. A. Moceri.
450 tons, 4, 6 and 8-inch pipe, Royal Oak, Mich., to Lynchburg Foundry Co.
303 tons, 10-inch class B, Coquille, Oreg., to United States Pipe & Foundry Co.
192 tons, 2-inch class B, Los Angeles, to Pacific States Cast Iron Pipe Co.
Three miles of 60 and 66-inch concrete water pipe, Denver, board of water commissioners, to Lock Joint Pipe Co.
Two miles of 27-inch water pipe, Greeley, Colo., to unstated maker, in addition to four miles of same size awarded previously.

CONTRACTS PENDING

377 tons, 6 to 10-inch class B, Anaheim, Calif.; American Cast Iron Pipe Co. low bidder.

To Finance Bolt Merger

Federal Screw Works, Detroit, in connection with its proposed acquisition of the Superior Screw & Bolt Co., Cleveland, is expected to issue $2,000,000 of 10-year 6½ per cent gold notes through a banking syndicate within a

few days. Upon completion of the proposed merger and the concurrent financing, capitalization of the Federal Screw Works will consist of $2,000,000 of funded debt, the only other outstanding securities being 159,000 shares of no par common stock.

Iron Ore

Shipments Continue At Record Rate—Total to Sept. 1 Highest in History

IRON ORE PRICES, PAGE 612

Cleveland, Sept. 3.—Lake Superior iron ore shipments have set a new monthly record every month so far this year. The August total, by vessels, was 10,806,967 tons, compared with 10,709,260 tons in August, 1926, the next best figure for the month. The total vessel movement to Sept. 1 this year is 43,717,787 tons, compared with 39,334,264 tons, the second best record for the comparable period, attained in 1918. With iron and steel production holding up, and iron ore stocks relatively low, it appears this year's total shipments will exceed the 66,658,466 tons of the record war year 1917.

Tin Plate

Slackening in Operations Due to Usual Seasonal Influences

TIN PLATE PRICES, PAGE 612

Pittsburgh, Sept. 3.—The recent marked decline in tin plate production is of no more than usual seasonal proportions and has come considerably later than in preceding years. Producers are operating largely against the current run of business and are under little pressure for deliveries except in occasional instances where earlier requirements of consumers were underestimated. Reports on various crops indicate that the packs of corn, tomatoes and peas will approximate earlier estimates with the pack of pineapple and fish larger than last year. General line can demand is holding well. Operations of the leading interest continue substantially ahead of independents, in contrast to the reverse situation which prevailed during preceding summer months. The average for the district is between 70 and 80 per cent.

Mexico Doubles Duties

Washington, Sept. 3.—Effective Sept. 27 the rate of import duty into Mexico will be doubled on many commodities, while plain sheets of galvanized iron or steel of any thickness will be dutiable at 9 centavos per gross kilo. The gage limits for determining the duty on plain and corrugated iron or steel sheets will be changed to the metric system, according to a cable received from Commercial Attache George Wythe, at Mexico City.

Sheets

Deliveries Shortened by Heavy Shipments, and Slight Reduction in New Orders

NEW orders for sheets in August did not equal the tonnage shipped, while shipments held up to the July level, thus reducing backlogs and moving up delivery dates. Business on books in the Pittsburgh district insures the present high rate of operations through this month. Further improvement is noted in demand for autobody sheets; reports of shading in prices are denied.

SHEET PRICES, PAGE 611

Pittsburgh, Sept. 3.—August sheet shipments were practically unchanged from the July total, but exceeded new business with the result that backlogs have been reduced. Demand still is of unusual proportions for this period and the fact that producers have not begun actively to solicit fourth quarter business is accounting for some of the decrease in unfilled orders. Current obligations will carry operations into October. Some slight improvement is noted in demand for automobile sheets, with several builders resuming production on new models. Producers report sheet business is lost through inability to make desired shipment, particularly on blue annealed which continues the most active grade. The recent weakness in the price of galvanized is in contrast to the active demand that has prevailed for some time. Delivery on both blue annealed and galvanized generally is extended four weeks and more. Freight car construction continues to supply a fair portion of current sheet business and practically all other consuming lines are taking material in heavy tonnage for this period. Announcements are lacking of definite decision on fourth quarter prices although some intimations are heard of an advance on certain grades. Operations continue heavy with the leading interest holding slightly below capacity. The Monday holiday restricts output this week.

Cleveland, Sept. 3.—The drop in sheet specifications became more pronounced last week. Lack of buying is noted chiefly among the finishes used by automobile and automobile parts makers. Consumers' stocks are low. Autobody sheets can be delivered in four to five weeks. Metal furniture grades and electrical sheets still are in good demand. In all probability this quarter's prices will be reaffirmed for the fourth. Small mills sacrifice as much as $2 per ton in the prompt market.

Cincinnati, Sept. 3.—New tonnage bookings, due chiefly to the return of several automobile companies into the sheet market in this district, again served to increase backlogs. A number of rush orders are noted. Deliveries of four to six weeks on blue annealed and three to four weeks on black sheets were promised.

Chicago, Sept. 3.—More blue annealed sheets are being added to mill books, but the high rate of operations is tending to keep deliveries from lengthening perceptibly. Operations for the district are close to 85 per cent. One group of hot mills expect to operate in full by next month. Blue annealed sheet deliveries are 12 to 15 weeks, and black and galvanized are four to five weeks. Mill prices for No. 25 galvanized are 3.75c to 3.80c.

Philadelphia, Sept. 3.—Sheet prices are steady, with some sellers receiving substantial orders from the southern roofing trade. Cable advices tell of an advance in the Mexican duty on sheets. The increase on some grades is at least 100 per cent. As the new duties are expected to become effective Sept. 20 a heavy movement of sheets to that country is to begin immediately. Domestic deliveries of galvanized are in four to five weeks; black three to four weeks; blue annealed three to five weeks.

St. Louis, Sept. 3.—Demand for sheets continues better than the seasonal average. The leading local producer is operating at capacity in all departments, and will maintain that rate through September. Prices are unchanged.

Youngstown, O., Sept. 3—Resumption of sheet mill operations this morning after the holiday found independent mill activity reduced to 88 per cent, against 94 per cent last week. Most plants have backlogs and managers are not apprehensive, expecting the usual business by the middle of this month. Some mills here have five to six weeks' backlog, others larger, while still others have two to three weeks, insuring good deliveries to customers. A fair amount of new business in common black sheets is being taken, all at 2.85c, Pittsburgh. Some talk was heard in Michigan of 4.00c autobody sheets having been placed, but this generally is discredited since important consumers in that district have just closed for large requirements at 4.10c. Galvanized sheets are held by valley makers at 3.65c.

Rome Iron Mill Leased

Rome, N. Y., Sept. 3—Rome Iron Mills Inc. announces its plant here has been leased to the Wrought Iron Co. of America. The mill organization will be retained and the Wrought Iron company will continue the manufacture of high grade wrought iron here.

Structural Shapes

24,000-Ton Hotel Let in New York—Pending List Has Vitality—Specifications Active in Most Market Sections

LETTING of a 24,000-ton hotel in New York, together with a 4000-ton telephone building and a 3000-ton apartment there, enables structural awards this week to maintain an aggregate in excess of the weekly average for August, which was 45,764 tons. Several lesser jobs too were let including a 2100-ton paper manufacturing building at Monroe, La., a 1780-ton building at Minneapolis, bridges in New Jersey taking 1700 tons. Presence of a 9300-ton subway section among the inquiries with a 7720-ton city hall up at Buffalo gives vitality to the pending list. A 20-story office building is active in New York where an 80-story structure also is planned. Mills report active shape specifications. Prices generally are firm. Bidding is extremely competitive.

STRUCTURAL SHAPE PRICES, PAGE 611

New York, Sept. 3.—A fair volume of new pending work developed the past week, including a bank building at Philadelphia, calling for 3000 tons and two projects here, involving more than 1000 tons apiece. All bids on the state agricultural building at Harrisburg, Pa., calling for 6000 tons were rejected. A good volume of older pending work is still alive. Mills are running near to capacity. Prices are unchanged.

Structural engineers have been consulted about plans for an 80-story 1000-foot building here for the Empire State Building Corp. on the Waldorf-Astoria hotel site. The company is headed by Ex-governor Alfred E. Smith.

Pittsburgh, Sept. 3.—Demand for both plain and fabricated structural material continues fairly active although the bulk of recent awards in this district is comprised of jobs requiring less than 100 tons apiece. Fabricators' backlogs are not extensive but a steady run of business is helping to sustain operations. Specifications for plain material have declined but slightly during the past 30 days and make a good comparison with activity a year ago. New inquiry largely is confined to industrial projects although few large tonnages are included. Plain material continues 1.95c, Pittsburgh.

Boston, Sept. 3.—Structural awards last week were less than 500 tons and but 200 tons is pending. Palmer Steel Co. was awarded 100 tons for a foundry at Branford, Conn., an unnamed fabricator 100 tons for the high school at Springfield, Vt., and an unnamed fabricator 175 tons for an office building at Nashua, N. H., and Boston Bridge Works, 100 tons for a Fall River, Mass. bridge. Pending are 100 tons each for a state bridge at Fairfax Falls, Vt. and a plant for the United States Rubber Co., Providence, R. I.

Cleveland, Sept. 3.—Small structural jobs predominate in the Cleveland area. Several local fabricating shops are able to remain on a 100 per cent basis and jobs awarded them seldom exceed 100 or 150 tons at a time. Mills report active specifications throughout August, on a slightly lower scale than in July. The substructure of the Central-Lorain bridge here, will probably come up early this fall but the superstructure will be carried over until next spring. The general contract for rebuilding the New York Central dock at Toledo, O., went to the Walsh Construction Co., Davenport, Iowa. A tonnage of sheet piling is said to be involved.

Philadelphia, Sept. 3.—August shape demand in this territory was somewhat under that of July. Demand now, however, reflects considerable vitality, particularly during the past week, in view of unusually active structural lettings. Eastern mills continue to operate fairly full. Good structural tonnages are being figured. Shapes continue at 1.90c to 2.05c, base eastern mill with occasional lower prices.

Buffalo, Sept. 3.—City council is due to meet later in the week to sign contracts for the new municipal building. Observers state that the next week might see the work actually under way. John W. Cowper Co., general contractor will buy 7720 tons of fabricated steel for the job and more than 1000 tons of reinforcing steel as soon as authorization is granted to proceed with the work.

Chicago, Sept. 3.—Industrial building, public utility work, and highway and railroad bridge projects still afford important outlets for structural steel. Active programs are taking form in Milwaukee, St. Louis and at various points in western territory. Road machinery builders continue to take light shapes, and it is reported that several builders of cranes for road building and excavating work have orders extending for six months. Plain material deliveries are four to six weeks. Structural mill operations are slightly above 90 per cent. The base price for plain material remains at 2.05c, Chicago.

Awards Compared

	Tons
Awards this week	50,755
Awards last week	50,216
Awards two weeks ago	57,335
Awards this week in 1928	38,860
Average weekly awards, 1928	39,082
Average weekly awards, 1929	42,534
Average weekly awards, Aug.	45,764
Total awards to date, 1928	1,368,046
Total awards to date, 1929	1,531,222

CONTRACTS PLACED

24,000 tons, New Waldorf-Astoria hotel, Park avenue, New York, to McClintic-Marshall Co.

4000 tons, telephone building, Board and South William streets, New York, to A. E. Norton Inc.

3000 tons, apartment, Park avenue and Seventy-first street, New York, to Hinkle Iron Co.

2100 tons, building, Brown Paper Co., Monroe, La., to Virginia Bridge & Iron Co.

1780 tons, Forshay building, Minneapolis, to Duffin Iron Co.

1700 tons, two bridges on Hudson tunnel thoroughfare, Elizabeth, N. J., to Bethlehem Steel Co., through J. H. Chapman & Son, Hillside, N. J.

1600 tons, apartment, Riverside drive and Seventy-seventh street, New York, to Easton Structural Steel Co.

1500 tons, Harrisburger hotel, Harrisburg, Pa., to McClintic-Marshall Co.

1000 tons, apartment house, East Seventy-ninth street, New York, to Harris Structural Steel Co.

800 tons, building, Fox Film Co., West Fifth street, New York, to Hinkle Iron Co.

750 tons, hangar, Roosevelt field, N. Y., to Jones & Laughlin Steel Corp.

750 tons, building, Sylvania Industrial Corp., Fredericksburg, Va., to McClintic-Marshall Co.

600 tons, building, First National Bank, Stamford, Conn., to McClintic-Marshall Co.

600 tons, car shop, Philadelphia & Reading railroad, Wayne Junction, Pa., to McClintic-Marshall Co.

600 tons, power house, Central Arizona Light & Power Co., Phoenix, Ariz., to Allison Steel Co.

500 tons, addition to plant of Marathon Paper Co., Menasha, Wis., to Worden-Allen Co.

380 tons, Reading railroad bridge, St. Clair, Pa., to Bethlehem Steel Co.

350 tons, highway bridge, Mt. Carmel, Pa., to Bethlehem Steel Co.

350 tons, Reading railroad bridge, Cumro Junction, Pa., to McClintic-Marshall Co.

350 tons, apartment, Upsal street, Philadelphia, to Richard Decou Co.

350 tons, factory, Willard Storage Battery Co., Los Angeles, to Consolidated Steel Corp.

300 tons, Fargield street bridge, Seattle, to Pacific Car & Foundry Co.

300 tons, bridge, Ventnor, N. J., to Bethlehem Steel Co.

275 tons, plant addition, Taylor Forge & Pipe Works, West Fourteenth street, Chicago, to A. Bolter's Sons.

250 tons, hand railing, Ohio river boulevard, Pittsburgh, to Independent Bridge Co.

250 tons, school, Glen Mill, Pa., to Shoemaker Bridge Co.

200 tons, building, White Motor Co., Cleveland, to Paterson-Leitch Co.

200 tons, plant addition, Grasselli Chemical Co., Grasselli, N. J., to Guibert Steel Co.

180 tons, apartment, Fifty-seventh and Oxford streets, Philadelphia, to Richard Decou Co.

175 tons, high school building, Springfield, Vt., to unstated fabricator.

160 tons, state highway bridge, Pennsylvania, to American Bridge Co.

150 tons, Magdalene St. Sophie school, Philadel-

phia, to McClintic-Marshall Co.
150 tons, building, Ohio Oil Co., Findlay, O., to Berger Iron Works.
150 tons store and office building, Devon avenue, Chicago, to Midland Structural Steel Co.
140 tons, bridge span for Chicago, Milwaukee, St. Paul & Pacific, to American Bridge Co.
110 tons, restaurant building, Pearl and Winter streets, New York, to George A. Just Co.
105 tons, Nehalem river bridge, Tillamook, Oreg., to unstated company.
100 tons, office building, Nashua, N. H., to unstated fabricator.
100 tons, bridge, Fall River, Mass., to Boston Bridge Works.
100 tons, foundry, Branford, Conn., to Palmer Steel Co.
100 tons, including bridges in South America, to Virginia Bridge & Iron Co.
100 tons, National Farm school administration building, Doylestown, Pa., to Belmont Iron Works.
100 tons, factory, American Cigar Co., Philadelphia, to American Steel Engineering Co.

CONTRACTS PENDING

13,000 tons sub and superstructures, Central-Lorain bridge, Cleveland; substructure to come out this fall; superstructure, next spring.
9300 tons, subway route No. 101; bids opened Sept. 27.
6000 tons, department of agriculture building, Harrisburg, Pa. Bids rejected.
3000 tons, Market Street National bank, Philadelphia.
2000 tons, 20-story office building, 101 Wall street, New York. Maj. David M. Oltarsh, consulting engineer.
1550 tons, Women's House of Detention, New York; reported previously (Aug. 22) as having been awarded to McClintic-Marshall Co.; not yet awarded by Psaty & Fuhrman Inc., general contractor.
1100 tons, Grand Central tunnel expansion, New York.
700 tons, public school No. 230, Brooklyn, N. Y.
550 tons, building, East Fifty-third street, New York. Plans filed.
400 tons, highway bridge over Red river, Fargo, N. D.
300 tons, prison addition, Utica, N. Y.
200 tons, tainter gates for Seattle Diablo dam; Willamette Iron & Steel Works low bidder.
150 tons, hangar, Curtiss air field in the east.
110 tons, plant addition, Champion Machine & Forging Co., Cleveland. Bids in Sept. 3.
100 tons, United States Rubber Co. plant, Providence, R. I.
100 tons, state bridge, Fairfax Falls, Vt.
Tonnage unstated, 43-story office building, Cincinnati, for Starrett Investing Corp., New York.
Tonnage unstated, $2,225,000 combined church and store building, First Presbyterian church, Cincinnati.
Tonnage unstated, 14-story office building addition, Western & Southern Life Insurance Co., Cincinnati.
Tonnage unstated, Rhode Island state bridges as follows: Hope Mill Trench bridge, Hope bridge, Scituate, R. I., and Stillwater reservoir bridge, Smithfield, R. I.
Unstated tonnage, plant for the Tyson Roller Bearing Co., Canton, O.
Unstated tonnage, $500,00 mustum for Frederick B. Patterson, president, National Cash Register Co., Dayton, O. Architects now drawing plans.

Records at Sydney Go

Montreal, Que., Sept. 3.—British Empire Steel Corp., Sydney, N. S., this year is breaking the production records of the past five summers. Before the end of navigation it is expected that more than 40,000 tons of steel will have been shipped from Sydney, including 30,000 tons of rails, 6000 tons of tie plates and 4000 tons of wire and nails. Mills are at capacity,

Price-Evans Foundry Co., Chattanooga, Tenn., has been awarded ornamental and miscellaneous ironwork for a government hospital at Fort Benning, Georgia.

Concrete Bars

Backlogs Not Reduced—Orders Keeping Up—Inquiries Are Well Sustained

BACKLOGS of concrete bar orders could not be much reduced in August since new business kept abreast of shipments. Chicago reports 3500 tons awarded during the past 10 days. Buffalo district has that much up in live inquiries. Awards include 800 tons at Elizabeth, N. J.; 650 tons at Hartford, Conn., 500 tons at Seattle. Michigan grade separation work will take 1000 tons.

REINFORCING BAR PRICES, PAGE 611

Chicago, Sept. 3—With the closing of about 3000 to 3500 tons of reinforcing bars in Chicago, Milwaukee and outlying territories in the past 10 days, active projects are less numerous. Possibilities are encouraging for autumn business. The Chicago avenue water main tunnel, in Chicago, will require an undetermined tonnage. Industrial building continues to take the lead. It is reported here that New Orleans is taking bids on a large tonnage of reinforcing bars. Rail steel bars are quoted at 1.95c to 2.05c.

Boston, Sept. 3.—More concrete bar tonnage was disposed of last week than in a long time. Nearly 1200 tons was placed. Truscon Steel Co. was awarded 125 tons for a bridge at Fall River, Mass., and 650 tons for a warehouse at Hartford, Conn. Concrete Steel Co. received the 200 tons for a dormitory for Radcliffe college, Cambridge, Mass., and odd jobs totaled 200 tons.

New York, Sept. 3.—Concrete bar prices remain firm and unchanged. Some talk is heard about an advance on carload shipments to the jobbing trade. Deliveries are three or four weeks deferred. Bridges at Elizabeth, N. J., taking 800 tons are among the prominent awards. Two jobs involving more than 1000 tons each are pending.

Pittsburgh, Sept. 3.—Producers of concrete reinforcing bars failed to reduce backlogs materially during August. Incoming business, although largely in the form of small individual orders, held fairly close to shipments. August tonnage was only slightly below the July total and for most makers showed a substantial gain over the corresponding 1928 figure. Inquiry is slightly less active, although the large number of small orders aggregate high. The market is firm at 2.30c, Pittsburgh, for cut lengths and 2.05c for stock lengths.

Buffalo, Sept. 3.—Reinforcing bar orders will be large this month if pending inquiry is covered as expected. Among orders about due is one for 1000 tons for the new city hall, another for 800 tons for Buffalo General Electric Co.'s addition, and several 50 to 500-ton lots, probably 3500 tons in all. Reinforcing bar producers look for September production to be as large as any month of the year.

Cleveland, Sept. 3.—Between 700 and 1000 tons of concrete bar work was let in this district last week. Awards were topped by 500 tons for bridges, foundations, etc., for the Cleveland Union Terminals Co., and 200 tons for buildings for the Ohio State university, Columbus, O., going to Bourne-Fuller Co. Otherwise awards were small. The market is not strong. Some quoting 1.95c, Cleveland, recently again lost out.

Awards Compared

	Tons
Awards this week	5,893
Awards last week	4,275
Awards last week	4,275
Awards two weeks ago	10,488
Awards this week in 1928	7,130
Average weekly awards, 1928	6,189
Average weekly awards, 1929	6,290
Total awards to date, 1928	247,435
Total awards to date, 1929	226,430

CONTRACTS PLACED

2000 tons, work for Chicago, Milwaukee, St. Paul & Pacific railroad, in small lots to a number of fabricators.
800 tons, two bridges on Hudson tunnel thoroughfare at Elizabeth, N. J., to Faitoute Iron & Steel Co., through J. F. Chapman & Son, Hillside, N. J.
650 tons, warehouse, Hartford, Conn., to Truscon Steel Co.
500 tons, market building, Fourth and Virginia streets, Seattle, for Washington Securities Co., to Pacific Coast Steel Co., through Puget Sound Bridge & Dredging Co. general contractor.
500 tons, East Cleveland, O., and Kinsman road, Cleveland bridges and foundations, Cleveland Union Terminals Co., Cleveland, to Bourne-Fuller Co.
450 tons, McMillen hospital, Barnes group, St. Louis, to Laclede Steel Co.
200 tons, dormitory for Radcliffe college, Cambridge, Mass., to Concrete Steel Co.
200 tons, buildings, Ohio State university, Columbus, O., to Bourne-Fuller Co.
143 tons, canal project, Ellensburg, Wash., to unstated company.
125 tons, intake gates, Long Bell Lumber Co., Longview, Wash., to unstated company.
125 tons, state bridge, Fall River, Mass., to Truscon Steel Co.
100 tons, factory building, Diversey boulevard, Chicago, to Concrete Engineering Co.
100 tons, Bethany hospital, Chicago, to Olney J. Dean Co.

CONTRACTS PENDING

1000 tons, Grand Trunk railroad grade separation, Birmingham, Mich.

500 tons, grain elevator, Superior, Wis.
300 tons, six bridges, Bergen county, N. J.
200 tons, apartment building, 6230 Kenmore avenue, Chicago; general contract to H. Janisch & Co.
115 tons, hospital, Grassland, N. Y.
100 tons, rebuilding New York Central dock, Toledo, O. General contract to Walsh Construction Co., Davenport, Iowa.
100 tons, building, Fairmont Creamery Co., West Seventeenth street and Wiley avenue, Cleveland; F. Thomas, Omaha, Nebr., architect.
100 tons, hospital, Englewood, N. J.
Unstated tonnage, municipal work for New Orleans, bids being received.

Operating Rates

Chicago Drops, Pittsburgh Holds 90 to 95, Valley Unchanged

Chicago—Steelworks operations in the Chicago district have dropped to about 95 per cent owing to declines in bar and structural mill operations, and holiday interruptions. Steel ingot production is at a high rate, with all available open-hearth furnaces in use. A year ago operations were about 80 per cent. Structural mill operations are slightly above 90 per cent, while bar mill activity is close to 95 per cent. Twenty-nine of the 36 blast furnaces in the district are active.

Pittsburgh—The downward trend in operations of semifinishing mills as yet has not affected ingot production, which holds at 90 to 95 per cent. Sheet mills continue at 90 to 98 per cent, with tin plate operations lower at 70 to 80 per cent. Strip mill schedules are tending downward, with the current rate around 75 per cent. Pipe production is unchanged at 60 to 65 per cent for seamless and 75 per cent for welded.

Youngstown, O.—General observance of Labor Day as a holiday somewhat reduced steel output this week, with most plants resuming operations this morning on unchanged schedules. The Carnegie Steel Co. operated as usual Monday due to the employes having been given a holiday a week ago for their annual picnic and outing. Needed repairs at one Carnegie Steel Co. stack has temporarily reduced the number blowing in the district to 27. Of the 51 independent open hearths, 46 are melting. Independent bar mills are at 75 per cent and Carnegie Steel Co. 90 per cent, both unchanged. Seven fewer independent sheet mills resumed this morning, making 106 units active. Strip mills are scheduled to capacity, independent tin mills also, while the Steel corporation subsidiary tin mills continue at 85 per cent. One additional unit was gained in wrought pipe mill operations this week, making 15 active. The Girard puddle mill is 60 per cent active.

Birmingham, Ala.—With all six open-hearth furnaces in operation and the bar department operating night and day six days a week, Gulf States Steel Co. is finding this activity necessary to keep up with demands. Wire and nail market also is showing improvement.

Electrodor Co., Detroit, has changed its capital from $50,000 to 45,000 shares no par value.

Rails, Cars

Rail Orders Increase—Thirty-five Locomotives Awarded—Roads Ask Steel Bids

RAILS gradually are crowding cars out of first place. The Reading bought 30,000 tons from two mills. A southwestern road wants 8000. Canadian Pacific ordered liberally in Canada. New York's subways will require 90 miles of trackage. A New Jersey road awarded 200 cars. New York Central awarded 35 electric locomotives. Fourth quarter steel inquiries are appearing.

RAILROAD TRACK PRICES, PAGE 612

New York, Sept. 3.—Central Railroad of New Jersey has ordered 200 steel gondolas. A leading locomotive award calls for 35 oil electric switch engines for the New York Central.

Continued expansion of New York's $800,000,000 subway building program is expected to be announced by the Board of Transportation soon. Reported plans call for a 4-track system under Second avenue, Manhattan, or about 90 miles of track.

Delaware, Lackawanna & Western railroad has awarded contracts for electrification, involving 3,220,000 pounds of copper and bronze wire and cable. Two thirds of the order went to Anaconda Wire & Cable Corp. and the remainder to Bridgeport Brass Co., Standard Underground Cable Co., and American Electrical Works. Deliveries will not start for several months and will run over a long period.

Philadelphia, Sept. 3.—Philadelphia & Reading railroad has placed 30,000 tons of rails, 24,000 tons with Bethlehem Steel Co., and the rest with Carnegie Steel Co. Chesapeake & Ohio is inquiring for 3000 tons of plates, shapes and bars for fourth quarter. Norfolk & Western is inquiring for 1000 hopper body repairs, involving 6500 tons of plates, shapes and bars.

Chicago, Sept. 3.—Prospects in the standard steel rail market are considered bright for autumn delivery purchases. Further heavy specifications against contracts were taken out during the week, and a southwestern road is negotiating for 8000 tons.

Track fastenings sales amounted to about 2000 to 2500 tons. Light rail orders are in slightly heavier volume, averaging above the monthly totals of the past two years. Rail mill operations continue at about 75 per cent.

Most specifications against finished steel contracts for cars under order have been received by the mills.

Sault Ste. Marie, Ont., Sept. 3.—Algoma Steel Corp. has received another rail contract from the Canadian Pacific Railway, involving sufficient tonnage to keep the mill at high pressure for a month.

CAR ORDERS PLACED

Central Railroad of New Jersey, 200 steel gondolas, to Bethlehem Steel Co.

LOCOMOTIVE ORDERS PLACED

American Rolling Mill Co., two oil-electric locomotives to be built by American Locomotive Co., General Electric Co. and Ingersoll-Rand Co.
New York Central, 35 oil-electric switch engines, to American Locomotive Co., each equipped with 300 horsepower Ingersoll-Rand Co. diesel engine and 17-ton General Electric Co., storage batteries.
Western Electric, oil electric switch engines, to Westinghouse Electric & Mfg. Co.

CAR ORDERS PENDING

Birmingham Southern, 25 50-ton steel box cars.
Central of Georgia, 50 flat cars.
New York, New Haven & Hartford, five oil electric rail motor cars.

LOCOMOTIVE ORDERS PENDING

Chicago, Rock Island & Pacific, several locomotives.
Great Northern, two electric locomotives.
South Buffalo, three switch engines.

July Iron, Ingot Output Up in Canada

Toronto, Ont., Sept. 3.—Production of coke pig iron in Canada in July was 99,786 long tons, the highest of the year, 11 per cent over the 99,873 tons of June, and 5 per cent over the 95,422 tons of July, 1928. Compared with June, output of basic iron, showed an advance to 79,241 tons from 68,059 tons. Foundry iron dropped from 16,252 tons to 14,779 tons. Malleable showed little change at 5766 tons, against 5562 tons in June.

For the seven months ending July, production of pig iron was 618,343 tons, against 563,435 tons in the corresponding period of last year, an increase of 10 per cent.

Output of ferroalloys in Canada during July amounted to 7030 long tons, an increase of 12 per cent over June.

Steel ingots and castings were produced to the amount of 129,827 tons during July, an increase of 9 per cent over the 119,505 tons of June and 57 per cent over the 82,807 tons of July, 1928. Production of steel ingots and castings for seven months was 868,669 tons, 19 per cent over the 731,145 tons of the first seven months of 1928.

Wire

August Buying Holds to Unexpected Level—Nail Prices Adjusted and Are Steadier

BUYING of wire through the present summer has been of unexpected proportions, August making a record comparable to that of July and to summer of last year. Nail demand is light but adjustment of prices to conditions has done away with uncertainties. In common with other steel products wire awaits renewed automotive activity this fall.

WIRE PRICES, PAGE 612

Pittsburgh, Sept. 3.—Incoming business in wire during August made a favorable comparison with both July and the corresponding 1928 period. Shipments for some interests ran slightly ahead of July. Specifications from automotive interests are lighter but continue in heavy seasonal volume, with some gains shown as the result of renewed operations following model changes. Recent readjustments in nail prices have served to eliminate some uncertainty that prevailed in that market for a number of weeks, and a slight improvement is noted in jobber purchases of this product. Incoming nail business is light, however. The market generally continues $2.55 to $2.65, Pittsburgh, for wire nails with plain wire 2.50c to 2.60c.

Worcester, Mass., Sept. 3.—Rounding out a summer of sustained activity, wire production is maintaining its high rate. Demand is well spread, covering the entire line, and prices show no signs of lessening. Plain bright wire to dealers remains at 2.75c, Worcester base, to dealers.

Buffalo, Sept. 3.—Demand for wire is steady, although not quite up to peak proportions of the year. Mesh for road construction is a leader, while much of the local wire works' production of rods is going to subsidiaries. Operations are estimated at 90 per cent.

Cleveland, Sept. 3.—Manufacturers' wire orders remain the feature of the wire products market. Specifications this month have, if anything, aggregated higher than in July. Nail shipments are low and competition is keen. Locally, the price situation is firm, but in nearby territories, open competition rules. Wire is 2.50c, Cleveland, to manufacturers in the city but 2.40c, Cleveland, holds outside. Jobbers in the city can buy at the lower price.

Chicago, Sept. 3.—Manufacturers' wire, while in much better demand than jobbing products, is less active. Stocks of nails are fairly large and are slow in being liquidated. Some wire mill departments are operating above 75 per cent, but average operations for the district are about 65 per cent. Quotations on wire nails are $2.50 to $2.60, Chicago or western mills.

Monterrey Iron & Steel Works, Monterrey, Mexico, has offered to provide the iron and steel work for a hotel in Monterrey in consideration of shares in the enterprise.

Strip Steel

New Business Shows Decrease But Is Close to Year Ago

STRIP PRICES, PAGE 612

Pittsburgh, Sept. 3.—Incoming business in hot-rolled strip steel shows a marked decrease compared with the rate of 30 and 60 days ago, particularly from automotive industry. Despite unfavorable showing in August compared with July, total tonnage still compares favorably with a year ago, while at the same time August, 1928, marked an improvement over the preceding month. Operations are fairly well maintained although producers have caught up with obligations and reduced schedules are in prospect. Fairly prompt delivery can be effected on some sizes of hot strip, depending upon rolling schedules and desired widths. Cold-rolled strip maintains a fair degree of activity, with 2.75c, Pittsburgh, generally firm. The 2.85c figure is applied on only a limited tonnage. Hot strip is 1.90c and 2.00c, Pittsburgh, according to widths.

Philadelphia, Sept. 3.—Strip demand is fairly well maintained, with deliveries of hot rolled in three to four weeks and cold rolled in three to five weeks. Prices are unchanged.

Cleveland, Sept. 3.—The recent slump in buying of strip steel is felt more particularly in cold strip. This is because most cold strip tonnage is devoted to automotive purposes and that industry is not expected to resume buying until later in the month. Makers state they are determined to establish 2.85c, Cleveland, and will not quote less, although shipments are being billed almost daily at $2 less. Hot strip demand from hardware and miscellaneous manufacturers stays fairly well maintained but automotive orders are low. In some cases narrow strip is five to eight weeks deferred.

Eighty-five old employes of the Thomas Maddock's Sons Co., Trenton, N. J., have been given one share of stock in the American Radiator & Standard Sanitary Corp., the new owner, for each year of service. The gifts aggregate $100,000.

Cold Finished Steel

Buying Light But Consumption Continues High for Season

COLD FINISHED PRICES, PAGE 612

Pittsburgh, Sept. 3.—Automotive interests are quiet in new purchases of cold finished steel bars. Shipments still are heavy and August tonnage was fairly close to that of the preceding month. Incoming business, however, showed a marked decrease. Agricultural implement manufacturers also are restricting forward purchases but are taking fair tonnages against contracts. Some fourth quarter inquiry is appearing but there is little indication of a substantial upturn in automobile production during September. Continued heavy activity of Ford, however, holds total consumption in the automotive industry to a high seasonal level. Cold finished steel bars continue 2.30c, Pittsburgh.

Cleveland, Sept. 3.—Specifications this month in cold finished bars are much lower than last month. Some automotive customers however, who commenced to hold up orders in July are now going ahead with new models and require good tonnages. Others active in July are now withholding specifications. Miscellaneous consuming lines outside of automotive and allied fields are taking their usual quotas for this period, but the aggregate is small compared with normal automotive requirements. No interest is yet manifested in fourth quarter and books probably will not be opened until after Sept. 15. In the meantime 2.35c, Cleveland, holds.

Lake Superior Earnings 88 Per Cent More

Toronto, Ont., Sept. 3.—The annual report of the Lake Superior Corp. for the year ending June 30 shows a large increase in earnings of its principal subsidiary, Algoma Steel Corp. Net earnings were $3,494,336, compared with $1,854,084 for the previous year, an increase of 88 per cent. Improved earnings were due to increased tonnage and reduced costs, with additional by-product sales. There was no increase in the selling price of products.

Steel ingot production showed an increase of 33 per cent. Rail production was 231,606 tons, an increase of 52,292 tons. The 18-inch and 12-inch merchant mills, produced 93,250 tons, compared with 72,224 tons. Pig iron shipments were 92,856 tons, compared with 75,183 tons. The benzol plant commenced operating in October, 1928 and produced 1,277,347 gallons of motor benzol. Sales for the year were $18,799,300, against $14,740 613 for the previous year.

Unfilled orders at the close of the fiscal year totaled $5,606,651, compared with $3,277,183 the year before.

Nonferrous Metals

Sales of Lead and Copper Are Far Above Average Rates—Red Metal Prices Rise—Zinc and Tin Demand Is Quiet

Prices of the Week, Cents a Pound

	Copper			Straits Tin							
	Electro delivered	Lake delivered	Casting refinery	New York Spot	New York Futures	Lead New York	Lead East St. Louis	Zinc St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
Aug. 28	18.00	18.10	17.62½	46.12½	46.62½	6.75	6.55	6.80	23.90	9.00	35.00
Aug. 29	18.00	18.10	17.62½	46.12½	46.60	6.75	6.55	6.80	23.90	8.75	35.00
Aug. 30	18.00	18.10	17.62½	46.25	46.80	6.75	6.55	6.80	23.90	8.87½	35.00
Sept. 2.—Holiday.											
Sept. 3	18.12½	18.25	17.75	45.37½	46.12½	6.75	6.55	6.80	23.90	8.75	35.00

NEW YORK, Sept. 3.—Sales of lead and copper in the past week ran far above average business. It was the second week in succession of good business, and while buying for September shipment continued, October shipment also became active. The business was well diversified in the domestic market and was very good for export.

Copper prices advanced a quarter-cent on Tuesday to a spread of 18.00c to 18.25c, Connecticut.

Zinc and tin remained quiet. A little business was done in zinc for autumn shipment, while in tin sales were for nearby deliveries.

The outlook for the autumn is bright in all nonferrous metals and products. The good business of the past week, at a time when holiday spirit usually prevails, was significant for the autumn, it is stated.

Brass and copper mills are busy, and in copper wire the business is extraordinarily large. The Anaconda company advanced its copper wire prices a quarter-cent on Tuesday. Much brass business is at hand.

Copper—This metal was in the strongest position since last winter and higher prices were heard immediately after Labor Day. Buying has been moderately active for several weeks, with a gradually rising volume so that on Tuesday demand was tremendous for both domestic and export shipments. Some of the recent buying was for immediate shipment, and some for September, but the bulk of domestic orders has been for October delivery. Extraordinarily large export business has been well divided between September and October positions.

Zinc—Sales of prime western continue light, but lately there has been a little better buying than in the past few weeks. Less talk has been heard also about shading the 6.80c, East St. Louis figure. The ore market is unchanged at $44 a ton. Stocks of ore in the Joplin district have been piling up, but as some mines now are closed for 10 days and others for a longer period, it is probable that stocks will be materially reduced. Business in high grade zinc is active.

Tin—A little business has been done in the past week for spot and September arrival, but the market as a whole has been extremely quiet. The dullness has caused the market to decline. A rise of over 2600 tons in the world's visible supply last month also has had a depressive effect on the market. Stocks in public warehouse at the end of August were unusually light, but arrivals in the first week of September are scheduled to be heavy. Domestic deliveries in August were 7185 tons. So far this year they have exceeded last year's deliveries by more than 10,000 tons. Some tin is being removed from hidden stocks, according to gossip in the market.

Lead—Buying of lead has been increasing, so that in the past few days it has become very large. All classes of users have been in the market, mostly for September shipment, but also for October. Export business also has been good. Producers are in the strongest position in a long time.

Aluminum—New buying has been moderate, but consumption continues active and prices are firm.—*Daily Metal Trade.*

Mill Products

Base price cents per pound f.o.b. mill, except where otherwise specified

SHEETS	
Yellow brass (high)	23.25
Copper, hot rolled	27.75
Lead, full sheets (cut ¼c more)	10.00
Zinc sheet (100-pound base)	$10.25
Zinc strip (100-pound base)	$9.25
Aluminum, flat sheets, up to 10 gage, 3 to 72 inches wide	31.30
SEAMLESS TUBE	
Yellow brass (high)	23.25
Copper	29.25
RODS	
Yellow brass (high, full turnings)	21.25
Naval brass	24.00
WIRE	
Copper	20.12½
Yellow brass (high)	23.75

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	12.00 to 12.50
Chicago	11.50 to 12.00
Cleveland	12.75 to 13.00
HEAVY YELLOW BRASS	
Cleveland	8.50 to 9.00
ZINC	
New York	3.25 to 3.50
Cleveland	3.25 to 3.50
HEAVY COPPER AND WIRE	
New York	14.50 to 14.75
Boston	14.25 to 14.75
Chicago	13.50 to 13.75
Cleveland	14.50 to 14.75
RED BRASS BORINGS	
New York	11.00 to 11.50
YELLOW BRASS TUBING	
Cleveland	8.50 to 9.00
LIGHT COPPER	
New York	12.50 to 12.75
Chicago	12.00 to 12.25
Cleveland	12.50 to 13.00
LIGHT BRASS	
Boston	6.75 to 7.00
Chicago	7.75 to 8.00
Cleveland	6.50 to 7.00
ALUMINUM	
Clippings, Cleveland	17.50 to 18.00
Borings, Cleveland	9.00 to 9.50
Cast, Cleveland	12.50 to 13.00
Cast, Boston	10.50 to 11.00

Secondary Metals

Remelt aluminum No. 12	17.00 to 17.50
Brass ingot, 85-5-5-5	16.00

Coke By-Products

Phenol Output Barely Meets Needs—Distillates Are Active

New York, Sept. 3—Phenol continues firm with little spot material available. Shipments against contracts are heavy. Production appears hardly sufficient to meet demand. Bulk of material is moving at 16.00c, but any spot material goes at a premium. Buying by bakelite manufacturers remains active

Light oil distillates also are active, shipments against contracts being heavy at unchanged prices. Production of benzol is heavy for this period, but is moving into consumption with a broad outlet. Toluol is firm at 40.00c a gallon in tanks, with no accumulation of supplies.

Naphthalene both flakes and balls, is moving well against contracts at unchanged prices, while sulphate of ammonia is slightly more active as the fertilizer industry is gradually covering its needs. The Chilean market is reported steady, reacting on the domestic situation here. There is also a fair volume of business.

Coke Oven By-Products

Per Gallon at Producers' Plant in Tank Lots

	Spot
Pure Benzol	$0.23
90 per cent benzol	0.23
Toluol	0.40
Solvent naphtha	0.30
Commercial xylol	0.30
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.16 to 0.17
Per Pound at Producers' Plants	
Naphthalene flakes	0.05½ to 0.06½
Naphthalene balls	0.06½ to 0.07½
Per 100 Pounds Delivered	
Sulphate of ammonia	$2.20 to 2.25

Warehouse

Mill Deliveries Catching Up — Jobbers Less Active Thereby—August Tonnage Fully Up to July Rate

JOBBERS in many sections are selling less steel from stock because the mills are catching up on deliveries. However, the total tonnage for August shows no decrease from July in many sections. Sheets and bars move well at Pittsburgh. Steel bars are ahead of shapes in New York.

Boston—Large orders for blue annealed sheets result to jobbers because of deferred mill deliveries. The market is firm at 3.915c. August sales by warehouses exceeded July's, although shapes, concrete bars, etc. remain sluggish. Plates are fair.

Buffalo—August was a good month for local warehouses. Trade gathered momentum as the month progressed, following a rather slow start, Accumulated sales of the third quarter are now considerably in excess of those of the corresponding period of 1928, an exceptionally good one. Tonnage is well distributed. Orders indicate that all classes of consumers are buying iron and steel.

New York—Trading in iron and steel out of warehouse slowed up last week, reflecting in part preholiday influences. As a result, some jobbers report that August business will show little, if any, gain over July. Current demand for steel bars is good, ahead of structurals. Prices generally are unchanged.

Pittsburgh—August warehouse sales showed practically no decrease from July, although some slowing down was anticipated. Jobbers now sell less because mills are catching up on backlogs and can make quicker shipments. A steady demand still is being received for sheets and bars. Cold-rolled products are fairly active. Prices are unchanged and generally firm.

Philadelphia—Jobbers report August bookings somewhat under those of July, but prices are firm and unchanged.

Cincinnati—Notwithstanding a seasonal recession and a building rate slightly below the 1928 mark, warehouses report themselves as being well satisfied with trade, although demand is somewhat under July.

St. Louis—Warehouse interests report slightly better than average end-of-summer demand for iron and steel. General manufacturers' buying is well maintained. Some pickup is noted in building materials, beams and structural shapes. Wire nails show more signs of life. Sheets are active. Tank plates sell better. Railroads are buying more shop supplies.

Warehouse Quotations in Cents Per Pound at Leading Market Centers

STEEL BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.30c
Chattanooga	3.25c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.00c
Ft. Worth	3.75c
Houston	3.00c
Los Angeles	3.30c
New York†††‡‡	3.25c
Philadelphia*	2.80c
Pittsburgh	2.90c
Portland	3.00c
San Francisco	3.15c
Seattle	3.15c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	3.75c to 4.04c

IRON BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.30c
Chattanooga	3.25c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.00c
Ft. Worth	3.75c
New York††	2.80c to 3.24c
Philadelphia*	2.80c
St. Louis	3.15c
Tulsa	3.75c to 4.04c

REINFORCING BARS

Baltimore	3.31c
Boston	3.265c to 3.50c
Buffalo	2.95c
Chattanooga	3.25c
Cincinnati	3.15c
Cleveland	2.25c to 2.44c
Detroit	2.30c to 3.00c
Ft. Worth	3.50c
Houston	3.00c
Los Angeles cl	2.65c
Los Angeles, lcl	3.00c
New York	2.90c to 3.30c
Philadelphia	2.77c to 3.02c
Pittsburgh	2.90c to 3.175c
San Francisco cl.	2.00c
San Francisco lcl.	2.25c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.75c to 4.00c
Youngstown	2.30c to 2.60c

STRUCTURAL SHAPES

Baltimore	3.25c
Boston	3.365c
Buffalo	3.40c
Chattanooga	3.35c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.10c
Ft. Worth	4.00c
Houston	3.25c
Los Angeles	3.30c
New York†††‡‡	3.25c to 3.30c
Philadelphia*	2.70c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.15c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

PLATES

Baltimore	3.25c
Boston	3.365c
Buffalo	3.40c
Chattanooga	3.35c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-in. and thicker	3.00c
Cleve., 3/16-in.	3.20c
Detroit	3.10c
Detroit, 3/16-in.	3.10c
Ft. Worth	4.00c
Houston	3.00c
Los Angeles	3.30c
New York‡‡	3.30c
Philadelphia*	2.70c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.15c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

NO. 10 BLUE ANNEALED

Baltimore	3.60c
Boston 3/16-in.	3.915c
Buffalo	3.50c
Chattanooga	3.75c
Chicago	3.35c
Cincinnati	3.45c
Cleveland	3.25c
Detroit	3.35c
Ft. Worth	4.50c
Houston	3.90c
Los Angeles	4.00c
New York‡‡	3.70c to 3.90c
Portland	3.75c
Philadelphia*†	3.25c
Pittsburgh**	3.35c to 3.45c
San Francisco	3.80c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.75c
Tulsa	4.20c to 4.34c

NO. 24 BLACK SHEETS

Baltimore*†	3.75c
Boston	4.85c
Buffalo	4.20c
Chicago	4.05c
Cincinnati	4.05c
Cleveland***	3.75c to 3.90c
Detroit	3.95c
Ft. Worth	4.70c
Los Angeles	4.90c
New York	3.90c to 4.00c
Philadelphia*†	4.10c
Pittsburgh**	3.85c
Portland	4.90c
San Francisco	4.90c
Seattle	5.00c
St. Louis	4.25c
St. Paul	3.89c
Tulsa	4.34c

NO. 24 GALVANIZED SHEETS

Baltimore*†	4.50c
Boston	5.60c
Buffalo	4.70c to 4.85c
Chicago	4.90c
Cincinnati	4.90c
Cleveland***	4.60c to 4.75c
Detroit	4.75c
Ft. Worth	5.50c
Houston	5.40c
Los Angeles	5.30c
New York	4.60c to 4.75c
Philadelphia*†	4.85c
Pittsburgh**	4.85c to 4.95c
Portland	5.50c
San Francisco	5.30c
Seattle	5.50c
St. Louis	5.10c
St. Paul	4.68c
Tulsa	5.10c to 5.35c

BANDS

Baltimore	4.00c
Boston	4.015c to 5.00c
Buffalo	3.65c
Chattanooga	3.45c
Chicago	3.20c
Cincinnati	3.50c
Cleveland	3.25c to 3.65c
Detroit 3/16-in. and lighter	3.30c
Ft. Worth	4.25c
Houston	3.65c
Los Angeles	4.15c
New York‡‡	3.75c
Philadelphia*	3.55c
Pittsburgh	3.25c
Portland	4.00c
San Francisco	3.75c
Seattle	4.00c
St. Paul	3.50c
Tulsa	4.50c to 4.69c

HOOPS

Baltimore	4.00c
Boston	5.50c to 6.00c
Buffalo	4.05c
Chicago	3.75c
Cincinnati	4.05c
Cleveland	3.25c to 3.65c
Detroit, No. 14 and lighter	3.80c
New York‡‡	4.25c
Philadelphia*	3.55c
Pittsburgh	4.25c
Seattle	5.00c
St. Paul	4.00c

COLD FINISHED STEEL

	Rounds, Flats, hexagons, squares	
Baltimore (c)	3.50c(a)	4.00c
Boston	3.55c	4.05c
Buffalo	3.95c	4.45c
Chattanooga*	3.85c	4.35c(d)
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.65c	4.15c
Detroit	3.85c	4.35c
Los Angeles (a)	4.50c	.....
New York	3.60c	4.10c
Philadelphia*	3.60c	4.10c
Pittsburgh	3.70c	4.20c
Portland (a)	4.50c	.....
San Fran. (a)	4.25c	.....
Seattle (a)	5.00c	.....
St. Paul (a)	3.85c	.....
Tulsa	4.64c	5.14c

(a) Rounds only; (d) Squares only.

COLD ROLLED STRIP

Boston, 0.100-inch, 500 pounds lots	5.30c
Buffalo	5.85c
Chicago (b)	6.10c
Cincinnati	7.15c
Cleveland (b)	5.95c
Detroit	5.80c
New York	5.15c
Philadelphia (c)	5.15c

(b) Net base, straightening, cutting, boxing 1 ton or more.

(c) Plus mill, size and quantity extras.

SWEDISH IRON AND STEEL

New York duty paid

Hollow drill steel	13.00c
Iron bars, round	6.10c
Iron bars, flats and squares	6.50c

*Plus quantity differentials. ‡‡Minus quantity differentials. ††Domestic bars. **Less than 25 sheets. *†50 or more bundles. ***Less 0.15c where more than 10 bundles are ordered at once for delivery at one time.

Pacific Coast

Northwest Most Active in New Work—Sixty Days' Awards Total 31,000 Tons

MOST activity on the Coast is concentrated in the Northwest, with Washington and Oregon leading in tonnage placed and pending. A lull seems to have come in demand in California. Prices are steady, based on conditions in the remainder of the country. Much pending business in Washington is likely to be placed within a short time.

Seattle, Aug. 28.—Since July 1 contracts involving more than 31,000 tons of bars, plates, structurals and pipe have been awarded in the Pacific Northwest. This is more than half the entire totals for the first six months of 1929 in this territory. Pending and prospective tonnages are heavier than normal and indicate a healthy volume of business for the next three months.

Bids for the purchase of 9000 tons of railroad material, in storage at Seattle since 1917, are to be received by the National City bank, New York, Sept. 7. This involves steel cars, locomotives, axles and other parts. It is not standard gage and after 12 years of storage will probably be sold for scrap. The material was assembled for shipment to Russia but before it could be shipped the revolution took place and the equipment has since been held here. It is expected there will be keen rivalry between domestic buyers and exporting houses. At Vancouver, B. C., several months ago 30,000 tons of similar material were sold to Japanese interests and it still is being shipped.

Pig Iron and Coke

Foundry operators report the situation somewhat improved after an unusually quiet summer. Public works contracts have given the plants some new work and increased activity is expected next month. There is little interest in pig iron and coke as the foundries are well stocked. Prices of these materials are unchanged.

Coast Pig Iron Prices

Utah basic	$25.00 to 26.00
Utah foundry	25.00 to 26.00
*German	24.25
*Indian	25.00 to 26.00

*C.i.f. duty paid.

Bars, Plates and Shapes

The largest contract for reinforcing bars of the week was booked by the Pacific Coast Steel Co., 500 tons for a market building at Fourth and Virginia streets, Seattle, being built for the Washington Securities Co. This job also involves 25 tons of shapes. Both local mills are operating on unchanged schedules. Specifications are not so numerous and not much large tonnage is pending. Recent awards have been mostly in car lots. Merchant bars are steady at 2.35c, reinforcing at 2.30, mill prices.

Bids were opened at Everett today for the water system extension involving 4000 to 10,000 tons of plates for a large pipe line. Spokane will receive bids Sept. 5 for a pipe line improvement involving 1800 tons of plates. Willamette Iron & Steel Works, Portland, is low bidder for furnishing tainter gates and hoists for the Seattle Diablo dam, involving 200 tons of plates and 200 tons of shapes. Tacoma is about to call bids for 520 feet of 26-inch steel pipe to replace wooden mains. Bids for two tainter gates for the Long-Bell Lumber Co., Longview, will be opened Sept. 5. Mill prices of plates are unchanged at 2.35c.

Pacific Car & Foundry Co. has been awarded 300 tons of structurals for the Garfield street bridge, Seattle. Original estimates call for 950 tons but concrete piers were substituted. Sound Constructing & Engineering Co. has the contract for a telephone exchange at Forty-second street and Meridian avenue, Seattle, involving 52 tons of structurals and seven tons of reinforcing, awards for which are pending. Minister of public works, Victoria, B. C., will receive bids Sept. 16 for the steel super-structure of a highway bridge over the Thompson river to cost $50,000.

Finished Materials

Jobbing houses report a steady volume of business, this month being on a par with July. Warehouse buying in bars, angles and light plates is active and interest in sheets is greater. Prices are unchanged.

Westinghouse Electric & Mfg. Co. has the contract for furnishing 10 passenger elevators, motors and controls for the enlarged county-city building, Seattle. Bethlehem Steel Co. was low bidder for furnishing Seattle with rolled steel car wheels.

Ladner, B. C., has received proposals for furnishing materials for a $250,000 water system improvement. Alternate figures were submitted for wood, cast iron, steel and concrete pipe. The award is pending.

Old Materials

Exporters of steel scrap are unusually active because of prevailing low freight rates to Japan. For good grades they are reported to be paying as high as $13.25, gross ton, and obtaining space to Japan at $3.50, gross ton. Local steel mills are receiving normal quantities of steel scrap for which prices are unchanged at $10 and $11, gross. Cast iron scrap is depressed as foundries are buying only in odd lots. Average prices range from $14.50 to $14.75, gross, although sales in small tonnages under these figures have been made.

Small Lots Rule Buying

San Francisco, Aug. 31.—(*By Air Mail*)—Trading in iron and steel products on the Pacific Coast this week was, for the most part, confined to small tonnages and few new inquiries of importance came up. Prices continue on a fairly firm basis.

Pig Iron and Coke

Little of importance transpired in pig iron and coke this week, sales and inquiries being confined to small lots. Several thousand tons of foreign beehive and by-product coke is scheduled to arrive early next month which will be applied against contracts placed several weeks ago. No change in quotations is noted.

Bars, Plates and Shapes

Awards of reinforcing steel bars this week totaled 448 tons, compared with 1643 tons for the weekly average of the year. No new inquiries of importance came up for figures during the week. Prices remain firm at 2.30c, base, on carload quantities, and 2.60c. for smaller tonnages. Los Angeles prices are 2.40c, and 2.70c base respectively.

No new inquiries of note came up before plate fabricators for figures this week. Prices are firm at 2.35c, c.i.f.

Awards of structural shapes totaled 9851, compared with 3821 tons for the weekly average of the year. This is the largest weekly tonnage booked in over five months. Allison Steel Co. took 600 tons for a power house at Phoenix and the Consolidated Steel Corp. secured 350 tons for a factory in Los Angeles for the Willard Storage Battery Co. The Judson Pacific Co. was low bidder on 1000 tons for a hotel in Oakland. Bids are now being taken on 405 tons for a bridge over the Trinity River, Calif., on 325 tons for an addition to a factory in San Francisco and on 450 tons for a power house in the same city. Plain domestic shapes are firm at 2.35c, c.i.f., while foreign material is quoted around 1.70c, c.i.f. duty paid.

Other Finished Material

Activity in cast iron pipe is not pronounced and awards this week totaled 1044 tons, compared with the week average for the year of 1822 tons. The U. S. Pipe & Foundry Co. took 303 tons for Coquille, Oreg., and the Pacific States Cast Iron Pipe Co. secured 192 tons for Los Angeles. The American Cast Iron Pipe Co. was low bidder on 377 tons for Anaheim, Calif. Standard steel pipe is moving well, but mostly in small lots as stocks in distributors' warehouse are well rounded out. The Pacific Gas & Electric Co. has taken no action on its inquiry for 465 tons of gas line pipe.

Tariff Fight Shifts to Floor of Senate as Bill Is Reported Back

WASHINGTON, Sept. 3.—The senate finance committee Wednesday is reporting back to the senate the tariff bill which it has been considering since June 12. Changes recommended by the committee were presented in IRON TRADE REVIEW of Aug. 22. Lively opposition promised by Democrats and Progressive Republicans is expected to prevent immediate passage of the bill. There is some doubt whether a new tariff bill will be presented to President Hoover before the arrival of the next regular session of congress which convenes in December.

The senate finance committee, of which Senator Reed Smoot of Utah is chairman, is submitting a lengthy report on the changes ordered in the metals section of the bill. Concerning putting manganese ore on the free list the report states: "The committee amendment makes free of duty manganese ores and manganese concentrates which under the house bill and 1922 act were dutiable under Par. 302, if containing in excess of 30 per cent of metallic manganese, at 1 cent per pound on the metallic manganese." Explaining changes in the metal schedule the report states:

This schedule comprises 99 paragraphs, many of which provide for a greater number of diverse products, and industries. Most paragraphs provide for products or groups of products which bear little economic relations to the products in other paragraphs of the schedule, so that the diversity of factors to be considered in providing adequate phraseology and rates is vast.

Since the passage of H. R. 2667 much new information has become available which in a considerable number of paragraphs permits more accurate evaluation of competitive conditions than was possible by the house of representatives. Consequently a substantial number of revisions have been made in the House bill with a view to clarifying the language, facilitating administration of the act, and making adjustments in rates. The committee's changes of the House bill affect in this schedule about 40 upward revisions of individual rates and over 60 downward revisions, including items transferred to or from the free list.

Items transferred to the free list were: Manganese ore, muzzle-loading firearms, hoes, rakes, metal parts of typewriters, zinc dross, zinc skimmings, and nickel oxide. Articles made dutiable were: Cream separators valued at more than $40 but not more than $50 each, and milk cans. Certain items were specifically mentioned to avoid litigation over classification, or to effect changes in the rates now imposed, and to provide separate statistical classifications.

A tentative calculation shows that the result of the readjustment is an equivalent ad valorem rate for Schedule 3, based on imports during 1928 and taking into account transfers to and from the free schedule, of about 33 per cent. This compares with an equivalent ad valorem of 39.6 per cent in the house bill and 35.07 per cent when the rates of the tariff act of 1922 are applied. The decrease in revenue in the present bill from the house bill is about 17 per cent and from the act of 1922 about 6 per cent.

A few changes were made in the iron and steel schedule by which the present classification of hammer, mill, and roll scale is confirmed, and the rates on structural shapes and sheet piling were increased to conform to the rates on tonnage products which meet substantially less competition from imports. Brackets determined by values less than any foreign prices of steel during recent years have been merged with the next higher brackets to facilitate administration and avoid the possibility of undervaluation, such changes resulting in negligible alterations in rates. A slight increase was also made in the rate on pig iron.

Reductions have been made in the rate of duty on sponge iron, a new product, and in the rates on chromium steels. In addition, all duties in the steel schedule have been reduced by an amount compensatory both for the transfer of manganese ore to the free list and for reductions in the rates on manganese alloys.

The strong position of the American automobile industry in world markets warrants a reduction in duty on automobiles, said the committee. Concrete bars, not before mentioned in tariff acts, have been specifically mentioned to avoid conflict with Par. 312 as structural shapes. In regard to castings the committee states: "The provision that measurement shall be made at the largest inside diameter is inserted to avoid ambiguity in cases where the article has a varying cross section."

Pig Iron

(*Concluded from Page* 613)

size tonnage, and notified its representative that no more iron would be sold for less than $14. A Louisville, Ky., consumer is asking for 600 tons of southern foundry iron.

St. Louis, Sept. 3.—Purchasing of pig iron has declined in volume, but the tone of the market is decidedly firmer. Offerings, particularly by southern blast furnace interests, are less plentiful than heretofore, and the extreme low prices of recent weeks have disappeared. Sales reported the past several days aggregated 6000 tons, divided evenly between northern and southern iron. Virtually all classes of melters figured in the buying. Inquiries, tentative and specific, call for approximately 15,000 tons. The lowest southern offering heard of in the immediate past was $13.50, base, furnace. This contrasts with as low as $12 during the third week in August. Quotations on northern iron remain unchanged, but the market is a shade firmer. Shipments are holding up well, the August total exceeding July.

Philadelphia, Sept. 3.—A Delaware river pipe shop purchased a large block of southern iron in the past week. Another made a large purchase two weeks ago, making a total of 40,000 tons of southern iron placed with pipe shops here in the past two weeks. Birmingham furnace interests are less active in seeking business, and one has withdrawn from this market, where prices as low as $13, base, Birmingham, had been done. The minimum asking price now is $13.50. Eastern Pennsylvania foundry iron continues to bring $21, base, furnace, in this district. Included in the week's business were sales of two moderate size tonnages of basic at $20, furnace.

Youngstown, O., Sept. 3.—Pig iron shipments in August were larger than in July. New business is fair. No. 2 foundry and basic are holding at $18.50, valley, and bessemer and malleable $19.

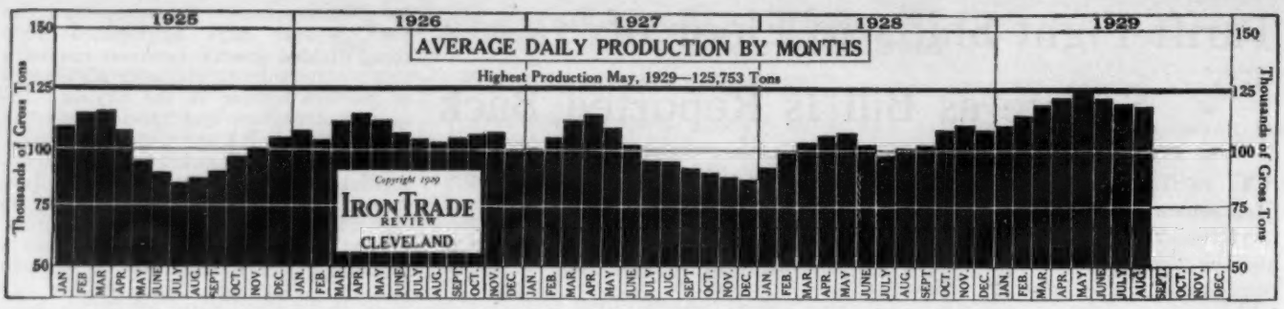
Birmingham, Ala., Sept. 3.—Considerable tonnage of pig iron is to be delivered by southern furnaces to the East and Middle West, the lower prices and reduced freight charges having stimulated the market. Quotations are stated as $14.50, base, furnace, in local district, and $14 in outside territory, but concessions have been given. Reduction of the surplus stock of pig iron is now anticipated before the end of the year. Further curtailment of production is scheduled. The Sloss-Sheffield Steel & Iron Co. will blow out the North Birmingham furnaces, leaving two of its entire number in operation. Republic Iron & Steel Co. will repair and blow in again in October the furnace blown out recently.

Toronto, Ont., Sept. 3.—Improvement in sales continues to feature the Canadian pig iron markets. While much of the new business is for spot delivery, melters also are buying for the future. Prices are firm.

Must Pay for Dividend

Toronto, Ont., Sept. 3.—An action brought by Thomas Ramsay, Francis A. McGee and other common stockholders of the Steel Company Ltd. against the preferred shareholders, was decided Aug. 23 by Justice Orde in favor of the plaintiffs. The effect of the decision is that approximately $5,000,000 must be distributed among common shareholders if the dividend rate on the preferred stock is to be increased from 7 to 8 per cent, as the directors have proposed.

Eclipse Interchangeable Counterbore Co., Detroit, has changed its name to Eclipse Counterbore Co.



August Drop in Iron Output Slight

PRODUCTION of pig iron in August continued on the down grade for the third consecutive month, but the shrinkage from July was comparatively small, and the month's output stands as an all-time record for August in both total and daily rate.

During August 3,738,438 gross tons of iron was made, as compared with 3,782,511 tons in July and 3,136,995 tons in August one year ago. Average daily production was 120,594 tons, or only 1422 tons or 1.16 per cent less than the 122,016-ton daily rate in the preceding month. The high point for any month was in May with 125,753 tons, while the previous best August was in 1923 with 111,254 tons.

Total production for the first eight months of the year constitutes a record with 29,158,486 tons. In the corresponding period of 1928, the output reached only 24,720,169 tons. Every month so far this year has established a new high point for that month. Thus far in 1929, pig iron has been turned out at the average rate of 119,993 tons per day.

Seven blast furnaces were removed from the active list in August, while only 3 were blown out in the previous month. July was the first month since November of 1928 to show a recession in the number of operating stacks. The active total on Aug. 31 was 210, against 217 on July 30.

Stacks blown in during August were as follows: In Ohio: Haselton No. 2, Republic Iron & Steel Co.; Cherry Valley, Davison Coke & Iron Co. In Pennsylvania: Colonial Iron Co.; one Isabella, Carnegie Steel Co.

Furnaces blown out were: In Ohio: Toledo B, Pickands, Mather & Co.; Haselton No. 2, Republic Iron & Steel Co. In Pennsylvania: One Edgar Thomson and one Duquesne, Carnegie Steel Co.; Bethlehem B, Bethlehem Steel Co. In New York: One Port Henry, Witherbee-Sherman Co. In Tennessee: Rockdale, Tennessee Products Corp. In Alabama: Tuscaloosa, Central Iron & Coal Co.; Bessemer No. 4, Tennessee Coal, Iron & Railroad Co.; Pioneer No. 1, Republic Iron & Steel Co. In Minnesota: One Duluth, Minnesota Steel Co.

MONTHLY PRODUCTION

	1929	1928	1927	1926
Jan.	3,433,028	2,855,515	3,101,346	3,319,789
Feb.	3,218,376	2,898,668	2,940,604	2,923,850
Mar.	3,709,518	3,199,175	3,482,107	3,458,171
April	3,663,167	3,181,975	3,424,377	3,438,805
May	3,898,344	3,292,790	3,391,067	3,477,820
June	3,715,104	3,082,340	3,089,726	3,232,478
July	3,782,511	3,072,711	2,954,625	3,224,663
Aug.	3,738,438	3,136,995	2,950,674	3,200,723
Total 8 mos.	29,158,486	24,720,169	25,334,526	26,276,299
Sept.		3,063,593	2,782,500	3,163,269
Oct.		3,373,539	2,812,015	3,334,206
Nov.		3,304,656	2,661,863	3,237,992
Dec.		3,369,784	2,698,208	3,089,175
Total		37,831,741	36,289,112	39,100,941

Rate of Operation

(Relation of Production to Capacity)

	1929†	1928*	1927‡
January	80.3	67.8	71.2
February	83.3	73.6	74.7
March	86.7	76.1	79.8
April	88.7	78.0	81.2
May	91.1	78.3	77.7
June	89.8	76.0	73.2
July	88.4	73.2	67.7
August	87.3	74.4	67.6

†Based on capacity of 50,367,665 tons as of Dec. 31, 1928. *Based on capacity of 49,605,720 tons. ‡Based on capacity of 51,379,400 tons. Capacities computed by American Iron and Steel institute.

AVERAGE DAILY PRODUCTION

	1929	1928	1927	1926	1925
Jan.	110,742	92,113	100,043	107,039	108,781
Feb.	114,942	99,954	105,021	104,423	114,788
Mar.	119,662	103,199	112,326	111,554	115,207
Apr.	122,106	106,066	114,146	114,627	107,041
May	125,753	106,219	109,388	112,187	94,642
June	123,837	102,745	102,991	107,749	89,301
July	122,016	99,120	95,311	104,021	85,976
Aug.	120,594	101,193	95,183	103,249	87,328
Sept.		102,120	92,750	105,442	90,862
Oct.		108,824	90,710	107,555	97,351
Nov.		110,155	88,728	107,933	100,775
Dec.		108,702	87,039	99,651	104,808
Ave.	119,993	103,365	99,422	107,126	99,645

DIVISION OF PRODUCTION

1928	Merchant	Non-merchant	Spiegel and ferro-manganese
Jan.	649,654	2,205,861	32,510
Feb.	579,298	2,319,370	27,376
Mar.	597,106	2,602,069	34,587
Apr.	586,045	2,595,930	33,599
May	596,664	2,696,126	38,466
June	589,127	2,493,213	38,628
July	584,611	2,488,100	42,230
Aug.	563,510	2,573,485	33,585
Total 8 mos.	4,746,015	19,974,154	280,981
Sept.	580,344	2,483,249	31,170
Oct.	643,043	2,730,496	33,519
Nov.	632,869	2,671,787	38,811
Dec.	686,431	2,683,353	34,541
Total	7,288,702	30,543,039	419,022
1929			
Jan.	744,448	2,688,580	37,210
Feb.	665,648	2,552,728	34,419
Mar.	740,966	2,968,552	37,997
Apr.	740,311	2,922,856	44,406
May	772,014	3,126,330	35,598
June	716,715	2,998,389	43,218
July	741,622	3,040,889	31,137
Aug.	678,252	3,060,186	40,527
Total 8 Mos.	5,799,976	23,358,510	304,512

AUGUST PIG IRON PRODUCTION

	No. in blast last day of month August	July	Total tonnage made Merchant	Nonmerchant	—Totals— August	July
Ohio	47	47	127,780	745,320	873,100	881,352
Pennsylvania	76	77	144,788	1,134,116	1,278,904	1,269,322
Alabama	14	17	119,430	85,790	205,220	225,513
New York	15	16	97,810	142,579	240,389	243,492
Illinois	19	19	100,873	277,064	377,937	385,559
Colorado	2	2				
Indiana	16	16				
Maryland	6	6	9,073	504,046	513,119	517,334
Virginia	1	1				
Wisconsin	0	0				
Kentucky	1	1				
Massachusetts	1	1				
Tennessee	2	3	27,591	78,019	105,610	112,192
Utah	1	1				
West Virginia	3	3				
Michigan	4	4				
Minnesota	2	3				
Missouri	0	0	38,190	65,442	103,632	105,050
New Jersey	0	0				
Texas	0	0				
Spiegel and ferro—all states	....	....	12,717	27,810	40,527	42,697
Total	210	217	678,252	3,060,186	3,738,438	3,782,511

Industrial Men in the Day's News

Frank R. Meyer Jr., Vice President In Charge of Sales, Inland Steel Co., Chicago

IT WAS in St. Louis that he gained his early experience in the marketing of steel products, including sheets.

CHICAGO was his next sphere of labor and after a 7-year connection with the Inland Steel Co. he was sent back to St. Louis as its district manager.

NEVER-FLAGGING interest, coupled with an abounding enthusiasm and energy, has been his motive power in creating new markets and furthering the use of sheet steel.

AMONG those whose life interest seems to center in and revolve about the development and future welfare of the sheet steel industry, Frank R. Meyer Jr. occupies a position in the forefront. As noted in IRON TRADE REVIEW of May 5, 1929, he was elected vice president in charge of sheet sales of the Inland Steel Co., Chicago, but all through his business life he has been closely identified with the successful marketing of that and other steel products. He has made a shining mark as a salesman of steel products and now finds it an absorbing task to direct the sales efforts of this important branch of the company with which he became identified in 1911.

Mr. Meyer was born in St. Louis, of pioneer stock, and in that city began his business career as a boy when he was employed by the Standard Stamping Co. He continued with that interest for more than 15 years in various capacities.

During that interval he took the fullest advantage of every spare moment to further his education by means of night school, correspondence courses and outside study. In various ways he learned more and more about the making and marketing of steel and allied products. Habits formed thus early in his career have apparently stuck to and continue to govern him, since even now amidst pressing duties he loses no opportunity to spend time in the study of the various phases and fundamentals of the business world.

Although still a comparatively young man, Mr. Meyer has had a varied experience in sales work in the steel industry. His quiet energy and inviting personality have marked him out and set him apart. They have stood him in good stead and have made for him hosts of friends among steel buyers and sellers alike in the West and Southwest. After representing a number of steel companies in their sales effort in the St. Louis territory, which broadened his acquaintance considerably and by means of which he gained considerable experience in the marketing of various products, he in 1911 became affiliated with the Inland company. After about seven years in its sales department at Chicago, he returned in 1918 to his former sphere of endeavor to represent the Inland company in St. Louis as district manager, remaining until 1927. In that year he was appointed assistant vice president in charge of sales with headquarters at Chicago and, as indicated, in May of this year he was promoted to be vice president in charge of sheet sales.

Mr. Meyer's interest in creating new markets and in efforts to broaden the outlook for sheet steel has fructified in noteworthy results. His never-failing enthusiasm and energy have been inspirational to those associated with him in both major and minor capacities.

Men of the Industry

L. E. GRIFFITH, since July, 1928, sales manager of the Riley Stoker Corp., Worcester, Mass., manufacturer of underfeed stokers, automatic furnaces, pulverized coal installations, etc., was recently elected vice president and director of that corporation. Mr. Griffith was graduated from Lafayette college, Easton, Pa., with the class of 1912. Since that time he has had extensive sales engineering experience through his successive connections with the Thompson-Starrett Co., New York and Chicago; the Babcock & Wilcox Co., the United Machine & Mfg. Co., and the Riley Stoker Corp. When the latter interest purchased the United Machine & Mfg. Co., which built stokers, Mr. Griffith was president. Since the merger he has been district manager of the New York office of the Riley corporation and in July, last year, he was appointed sales manager.

* * *

R. L. Triplett has been elected president and N. W. Cunningham treasurer of the Diller Mfg. Co. Inc., Bluffton, O., manufacturer of electrical appliances, to succeed the late Waldo E. Diller.

* * *

Percival Johnson Jr., president of the Pulaski Iron Co., Pulaski, Va., with headquarters in the Real Estate Trust building, Philadelphia, is expected to return Sept. 20 from a trip to Europe.

* * *

George E. Learnard and not George F. Leonard, as noted in IRON TRADE REVIEW of Aug. 22, page 489, was elected chairman of the board of the International Combustion Tar & Chemical Corp., 200 Madison avenue, New York.

* * *

H. P. Creighton recently purchased the interest of P. J. Schneider estate in the American Tool & Mfg. Co., Urbana, O., for a reported consideration of $20,500. Mr. Schneider died about two months ago and Mr. Creighton exercised the right of the surviving partner.

* * *

John W. Hobbs, formerly vice president and general manager of the A. C. Norton Corp., Moline, Ill., has been made general manager of the Coulter Disc Co., Galesburg, Ill., now a part of the Borg-Warner Co. Mr. Hobbs formerly was associated with the Borg-Beck Co., Moline, resigning five years ago to become associated with the Norton interests.

* * *

Otis L. Davis was appointed sales engineer of the Brainard Steel Corp., Warren, O., effective Sept. 1. He was recently sales supervisor in the development of special lines for the Acme Steel Co., Chicago. Prior to that connection, he was identified with the Western Electric Co. in the design of power plants. At one time he was a United States army engineer.

I. F. BAKER

Who, as noted in IRON TRADE REVIEW of Aug. 29, has been appointed European sales manager of the Westinghouse Electric International Co., 2 Norfolk street, Strand, London, Eng.

* * *

R. I. Schonitzer, formerly chief engineer with the Hydraulic Steel Co., Cleveland, and also formerly with the C. R. Wilson Body Co., Detroit, has been appointed body engineer for the Auburn Motor Car Co., Auburn, Ind.

William Taylor has been added to the engineering staff to do special work and C. A. Sampson has been named chief body inspector.

* * *

E. V. Rohr has been appointed assistant to John E. Eckenrode, vice president in charge of sales for the Grand Rapids Metalcraft Corp., Grand Rapids, Mich. His headquarters are in the General Motors building, Detroit. Mr. Rohr was with the Casco Products Corp., Bridgeport, Conn., as manager and direct factory representative for four years. He also was factory manager and sales engineer for the D. L. Auld Co., Columbus, O.

* * *

Harrison Nesbit, president of the Bank of Pittsburgh National association, has been elected chairman of the board of the Copperweld Steel Co., Glassport, Pa., and Frank R. Frost, president of the Superior Steel Co., Pittsburgh, has been named a director.

J. M. Roth, formerly chairman of the Copperweld Steel Co., who resigned recently to enter the investment business in Pittsburgh, is the inventor of the hot molten welding process for making copperweld wire and other products. This process was sold to the company. Mr. Roth was president from the company's inception in 1914 until 1926 when he was made chairman of the board.

* * *

Ralph Scott, formerly sales manager of the drill division of Gardner-Denver Co., Denver, Quincy, Ill., and La Grange, Mo., is enroute to London where he is to be stationed permanently as branch manager. W. G. Agnew, who was until recently the Gardner-Denver sales representative in Arizona, leaves for Lima, Peru, to take charge of the office there. The Gardner-Denver Co. manufactures rock drills, air compressors, slush pumps, drill sharpeners, high pressure drill steel forges and kindred machinery.

* * *

Joseph Gaffney has been made assistant to P. C. DeBruyne, superintendent of the Moline Malleable Iron Co., St. Charles, Ill., a newly created office. Mr. Gaffney has had charge of the shipping department for three months.

* * *

Dr. James Aston, consulting metallurgist, A. M. Byers Co., Pittsburgh, and inventor of its wrought iron pipe manufacturing process, who is director of the school of mines and metallurgy, Carnegie Institute of Technology, is taking a combined pleasure and business trip through the British Isles. In addition to visiting

(*Concluded on Page* 634)

British Markets Are More Active

Merger of Large Middlesbrough Companies Nearing Completion—Belgian and German Sales Quieter—French Prices Firm

European Headquarters,
IRON TRADE REVIEW,
Caxton House, Westminster, S. W.1

LONDON, Sept. 3.—(*By Cable*)—Indications of fall activity are appearing in the British iron and steel markets. Pig iron stocks are low, and many producers are sold up. One more blast furnace has been started in the Middlesbrough district, and two more are being relighted in Durham. The market for east coast hematite is improving, and conditions in Scotland are better. Midland pig iron demand is increasing.

Tube mills report a satisfactory situation, and the outlook in the sheet market is better. Marked improvement is noted in demand for Staffordshire bars. Continental steel is being offered at low prices in Birmingham. The market for galvanized sheets continues weak; that for tin plate is stronger.

Arrangements for the merger of Dorman, Long & Co. Ltd., and Bolckow, Vaughan & Co., Middlesbrough iron and steel manufacturers and constructional engineers, are nearing completion. Other concerns are expected to join eventually, resulting in a large northeastern group.

A report from Brussels states Belgian markets are quiet, prices are steady, and the September outlook is fair. The domestic market in France is satisfactory, prospects are good to the end of the year and prices are firm, according to a report from Paris. The markets in Germany are noticeably quieter, and prices are easier.

Summer Brings Quiet to British Steel Trade

LONDON, Aug. 23.—(*European Staff Service*).—Conditions in the iron and steel export trade are quiet, both on the Continent and in Great Britain. Apart from seasonal influences, buyers appear to be holding off in view of the fluctuations of continental steel prices. Continental iron and steel are, however, again making inroads in Great Britain. A few parcels of pig iron have been imported, but the quantities available from the Continent are limited. British rerollers also have been buying tonnages of continental semifinished steel and some steel strip. On the other hand, a tonnage of hematite was shipped to the United States about the middle of the month. While continental products are thus competing in the British home market, they also are being offered in most foreign markets at lower prices than the British. Since the beginning of the year, British export prices have been rising, whereas continental quotations have been on the decline. British merchant bars were quoted at £7 15s ($37.10) in January and now are £8 5s ($39.90); while continental bars early this year were around £6 4s ($30), against the present price of £5 13s ($27.30). For the time being the British have the advantage of quicker deliveries, but a number of continental makers find their order books somewhat depleted and will soon be in a position to offer shipment at shorter notice.

An encouraging aspect of the British position is the large number of orders for railroad rolling stock and other engineering contracts received lately from the Colonies and Dominions and South America.

On the Continent, Germany has been securing a fair volume of export business. The United Steelworks has

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, September 2	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable								
PIG IRON		£ s d		£ s d		£ s d		£ s d
Foundry No. 3, Silicon 2.50-3.00	$17.58	3 12 6*	$17.46	3 12 0	$17.46	3 12 0	$17.46	3 12 0
Basic	16.61	3 8 6	17.22	3 11 0	17.22	3 11 0	16.73	3 9 0
Basic-bessemer	18.43	3 16 0†	17.22	3 11 0	17.23	3 11 0	16.73	3 9 0
Hematite, Phosphorus 0.02-0.05	18.31	3 15 6	24.70	630*	.....	.....	17.70	3 13 0
SEMIFINISHED STEEL								
Billets	$31.53	6 10 0	$23.52	4 17 0	$23.52	4 17 0	$23.89	4 18 6
Wire rods	41.83	8 12 6	30.92	6 7 6	30.92	6 7 6	30.31	6 5 0
FINISHED STEEL								
Standard rails	$40.01	8 5 0	$31.53	6 10 0	$31.53	6 10 0	$31.53	6 10 0
Merchant bars	1.79c	8 5 0	1.25c	5 13 6	1.25c	5 13 6	1.26c	5 14 6
Structural shapes	1.60c	7 7 6	1.12c	5 2 0	1.12c	5 2 0	1.14c	5 4 0
Plates, ship, bridge and tank	1.76c	8 2 6	1.38c	6 5 0	1.38c	6 5 0	1.35c	6 6 0
Sheets, black, 24 gage	2.17c	10 0 0	2.42c	11 0 0	2.42c	11 0 0	2.33c	10 12 0
Sheets, galvanized, 24 gage, corrugated	2.90c	13 7 6	2.93c	13 6 3	2.93c	13 6 3	2.97c	13 10 0
Bands and strips	2.17c	10 0 0	1.29c	5 17 0	1.29c	5 17 0	1.29c	5 17 0
Plain wire, base	2.06c	9 10 0	1.65c	7 10 0	1.65c	7 10 0	1.65c	7 10 0
Galvanized wire, base	3.04c	14 0 0	2.12c	9 12 6	2.12c	9 12 6	2.09c	9 10 0
Wire nails, base	2.39c	11 0 0	1.76c	8 0 0	1.76c	8 0 0	1.79c	8 3 0
Tin plate, base box 108 pounds	$ 4.49	0 18 6	.....	.....	.....	.....	$ 8.97	1 17 0

*Francs

Domestic Prices at Works or Furnace—Last Reported			Francs		Francs		Marks	
Foundry No. 3 Pig Iron, Silicon 2.50-3.00	$17.58	3 12 6	$18.62	475(2)	$17.24	620	$20.25	85
Basic pig iron	16.61	3 8 6	19.99	510(1)	17.38	625	21.68	91
Furnace coke	4.00	0 16 6	6.27	160	5.84	210	5.12	21.50
Billets	31.53	6 10 0	24.30	620	24.46	880	28.82	121
Standard rails	1.79c	8 5 0	1.46c	810	1.63c	1,250	1.51c	140
Merchant bars	1.79c	8 5 0	1.34c	745	1.33c	1,025	1.52c	141
Shapes	1.76c	8 2 6	1.26c	700	1.23c	945	1.49c	138
Plates, ship, bridge and tank	1.93c	8 17 6‡	1.42c	790	1.48c	1,140	1.71c	158
Sheets, black, 24-gage	2.28c	10 10 0	2.87c	1,595	2.73c	2,100	2.43c	225
Sheets, galvanized 24 gage, corrugated	2.90c	13 7 6	3.68c	2,045	3.58c	2,750	3.78c	350
Plain wire	2.06c	9 10 0	1.94c	1,075	2.15c	1,650	2.48c	230
Bands and Strips	2.17c	10 0 0	1.51c	840	1.53c	1,175	1.77c	164

*Middlesbrough; †Scotch foundry iron; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 15s 6d ($3.76) f. o. b. Ferromanganese £21 13s, 0d ($105.00) delivered Atlantic seaboard, duty-paid. German ferromanganese £15 0s 0d ($72.75) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

obtained an order for the construction of steel bridges for the Persian railroads, and another for Indo-China, on reparations account. Two German firms have divided an order for 150 locomotives for Rumania. Of late, German steelworks have booked substantial orders from Holland and have sold semifinished steel to Great Britain. German works can offer quicker delivery than many other continental works and can thus obtain a premium on prices, bars being quoted £5 15s ($27.90), as against £5 13s ($27.30) in France and Belgium. In the last named countries, however, the bottom level seems to have been reached, according to opinion in some circles. Last week was quiet owing to the general holidays on Aug. 15, but prospects are said to be encouraging. The French, for the present, are showing more interest in their own market than in export business. An order for 30,000 metric tons of rails from Rumania has been divided between French and Belgian mills.

German Tonnage Larger in First Half

Berlin, Aug. 19.—(*European Staff Service*)—During first half year German output of steel ingots and castings showed an increase of 5 per cent over the production of the first half of 1928, the tonnage this year being 8,323,299 metric tons, which included 146,565 tons of steel castings. June output exceeded that of May, and included 25,596 tons of steel castings. Ingot production was composed of 728,652 tons of basic open-hearth, 646,302 tons of basic bessemer, 13,444 tons of acid open-hearth, 13,353 tons of crucible and electric steel, and 3105 tons of ingot iron.

Output of pig iron in Germany during first half was 0.27 per cent less than in the corresponding period of last year. June output was the highest for this year and was composed of 752,934 tons of basic bessemer, 225,702 tons of ferroalloys, 94,763 tons of foundry, 86,640 tons of hematite, 3174 tons of direct castings, and 1145 tons of gray forge pig iron.

Production of rolled steel products during first half showed a decrease of 9 per cent in comparison with that of the first half of 1928, the tonnage this year being 5,694,329 metric tons. Comparisons follow:

Mon. ave.	Furnace on last day	Pig iron	Steel ingots and casting	Finished steel
†1913	.....	909,640	993,640	970,240
1926	*109	803,625	1,028,470	856,340
1927	*116	1,091,875	1,359,225	1,069,930
1928	*101	984,700	1,209,770	963,550
1929				
Jan.	97	1,097,980	1,469,653	1,001,824
Feb.	96	981,695	1,269,874	864,801
March	97	1,061,214	1,314,373	904,257
April	99	1,105,098	1,414,916	978,473
May	104	1,133,134	1,421,047	959,090
June	103	1,164,358	1,430,452	985,884

†Present boundaries.
*Last day of year.

French Mine Less Ore

Paris, Aug. 19.—(*European Staff Service*)—French iron ore mines produced 4,176,277 metric tons in April, against 4,410,287 tons in March. Stocks at the mines at the end of April amounted to 2,802,839 metric tons, compared with 2,884,230 tons on March 31. Comparisons follow:

Mon. ave.	Production	Stocks at end of month
1913	1,826,500	.....
1926	3,269,033	.....
1927	3,723,200	.....
1928	4,109,780	.....
1929		
January	4,535,282	2,683,084
February	4,001,486	2,803,556
March	4,410,287	2,884,230
April	4,176,277	2,802,839

French Output Exceeds First Half 1928

Paris, Aug. 19.—(*European Staff Service*)—Output of pig iron in France during first half was 4.10 per cent larger than for the first half of 1928. The June output was slightly below that of May, and the record figure of January. The June output included 672,000 tons of basic bessemer, 106,000 tons of phosphorus foundry, 12,000 tons of semiphosphorus, 32,000 tons of hematite foundry, 28,000 tons of hematite forge pig iron and 15,000 tons of ferroalloys.

The output of steel ingots and castings in France for first half was 4.15 per cent more than for the first half of 1928. The June output included 779,000 tons of ingots and 18,000 tons of steel castings. The total tonnage included 559,000 tons of basic bessemer, 215,000 tons of open-hearth, 7300 tons of acid bessemer, 1700 tons of crucible and 14,000 tons of electric steel. Comparisons follow:

Mon. ave.	Act. Fur. on last day	Pig iron	Steel ingots and castings
1913	131	433,940	390,580
1926	155	785,965	702,500
1927	142	774,785	689,610
1928	153	841,415	782,995
1929			
Jan.	157	904,000	842,000
Feb.	157	782,000	743,000
March	156	880,000	805,000
April	158	871,000	810,000
May	157	897,000	820,000
June	155	865,000	797,000

British Exports Gain

London, Aug. 19.—(*European Staff Service*)—July showed an improvement in British exports of iron and steel over June. The July figure, however, was lower in comparison with other months of the year. Among principal items exported in July were: Plates and sheets, 45,078 tons, of which 8582 tons went to the Argentine Republic and 4467 tons to Japan; galvanized sheets, 53,896 tons, of which the largest tonnage went to India and South Africa to the extent of over 8000 tons; tinned and terne plates and sheets, 50,251 tons, shipments of which were pretty well divided between the markets of the world; wrought iron pipe, 32,094 tons, of which 6093 tons went to Australia; rails and track material, 37,806 tons, of which 15,145 tons of rails went to South Africa.

Among the principal items imported were: blooms, billets and slabs, 47,747 tons, of which 24,236 tons came from Belgium, 11,564 tons from Germany and 9913 tons from France; sheet bars and tin plate bars, 38,102 tons, of which 34,337 tons came from Belgium; wire rods, 13,220 tons; structural steel, 12,075 tons, of which 7816 tons came from Belgium.

Comparative figures are as follows:

	IMPORTS		EXPORTS	
Mon. ave.	Pig iron and ferroalloys	Other iron and steel	Pig iron and ferroalloys	Other iron and steel
1926	41,015	270,450	26,105	222,890
1927	50,715	316,455	27,580	322,100
1928	9,935	231,390	37,895	317,210
1929				
Jan.	13,034	231,233	49,406	371,783
Feb.	8,662	151,373	48,609	331,466
March	8,731	173,376	44,701	305,437
April	9,203	252,729	46,718	293,086
May	7,637	249,619	68,141	374,633
June	11,376	222,832	40,884	265,963
July	9,121	228,099	42,289	333,515

British Iron Output Is at High Rate

London, Aug. 19.—(*European Staff Service*)—Production of pig iron in Great Britain in July was the highest since May, 1927, and exceeded June and last July. July production included 208,600 tons of hematite, 283,800 tons of basic, 132,000 tons of foundry and 21,000 tons of forge pig iron. Figures are as follows:

Mon. ave.	Act. Fur. on last day	Pig iron	Steel ingots and castings
1913	*338	855,000	638,600
1926	78	204,800	299,700
1927	149	607,700	758,100
1928	132	550,900	710,400
1929			
Jan.	139	563,900	764,600
Feb.	140	519,600	774,900
March	145	590,500	859,900
April	152	611,300	808,600
May	159	654,800	840,400
June	165	657,800	830,900
July	167	671,900	804,800

*Average for year.

Luxemburg Makes Gain

Brussels, Aug. 19.—(*European Staff Service*)—Production of pig iron in Luxemburg for first half was 1,412,845 metric tons, 2.20 per cent more than in the first half of last year. Production of pig iron in June was slightly below the record figure of 247,863 tons reached in May and included 239,969 tons of basic bessemer and 2956 tons of foundry pig iron.

Output of steel ingots and castings in Luxemburg in the first half of this year amounted to 1,315,677 metric tons, 3.55 per cent more than in the corresponding period of 1928. The June output included 215,915 tons of basic bessemer, 2186 tons of open-hearth and 533 tons of electric steel. The following table gives comparisons in metric tons:

Mon. ave.	Furnaces on last day	Pig iron	Steel ingots and castings
1913	....	212,320	111,355
1926	40	209,295	186,980
1927	39	227,710	200,595
1928	38	230,840	214,315
1929			
Jan.	38	241,639	224,617
Feb.	38	209,207	195,338
March	38	237,089	221,370
April	38	235,077	226,098
May	38	247,863	229,620
June	38	242,020	218,634

Here and There in Industry

Timely Information Which Records Developments in Various Lines of Productive Enterprise

GENERAL ELECTRIC SUPPLY CORP. is being organized with a Delaware charter to consolidate 14 wholesale distributing corporations owned by the General Electric Co., Schenectady, N. Y. The plan involves no change in ownership. Seventy-six distributing houses are involved. Officers and directors for the new corporation are tentatively announced as follows: Chairman of the board, Gerard Swope; president and director, C. E. Patterson; executive vice president and director, J. L. Buchanan; vice president, eastern region, and director, J. G. Johannesen; vice president, western region, and director, D. E. Harris; secretary-treasurer, L. R. Link; comptroller, L. M. Nicholls; directors, N. R. Birge, A. D. Cameron, H. C. Houck, J. E. Kewley, G. C. Osborn, T. K. Quinn, E. O. Shreve, C. E. Wilson.

* * *

STEEL BLANKING CO., Sandusky, O., has started production in its plant which has been undergoing rebuilding after a fire.

* * *

LANG BODY CO., Cleveland, builder of bus bodies, has begun the manufacture of airplane parts in addition to its regular line of products.

* * *

SWEDISH IRON & STEEL CORP. has moved its general offices to the Whitehall building, 17 Battery place, New York.

* * *

FLINN & DREFFEIN CO., 431 South Dearborn street, Chicago, fuel engineer, has removed its Chicago offices to 308 West Washington street.

* * *

LUDLUM STEEL CO. has removed its Chicago offices from 1249 West Fulton street to 1238 West Washington street.

* * *

RICKARD ANTI-FRICTION BRAKE CO., Woodland and Artesia streets, Bellflower, Calif., has nearly completed its new plant and is installing foundry equipment.

* * *

RHODES MFG. CO., Waltham, Mass., has been organized and has bought from the B. C. Ames Co., Waltham, the assets of the Rhodes Mfg. Co., Hartford, Conn., which the latter recently bought. The Ames company will manufacture shapers and slotters formerly produced by the Hartford company and the Rhodes Mfg. Co. will market them.

* * *

DAY NAME PLATES LTD., Toronto, Ont., has changed its name to Metal Etchers & Manufacturers Ltd. and is moving into more commodious premises on King street east.

* * *

WARNER GEAR CO., a division of the Borg-Warner Corp., has completed an addition to its plant at Muncie, Ind., which will increase its capacity 30 per cent.

* * *

POWER MACHINE WORKS, Seattle, has moved to a new location at 3003 Railroad avenue south, where larger quarters are being used and additional machinery has been installed.

* * *

GENERAL INSTRUMENT CORP., Chicago, has been formed by a merger of James P. Marsh & Co., Chicago, American Paulin System Inc., Los Angeles, and Tiffany Mfg. Co., Newark, N. J.

* * *

NOBLITT SPARKS INDUSTRIES INC., Indianapolis, has advanced its dividend rate from $2 to $4 annually. Its net for first half was $220,676, with prospects of third quarter equaling the first six months.

* * *

CLEVELAND TRENCHER CO., Cleveland, manufacturer of trenching and excavating machinery, has established a plant at Eighteenth street and Town's road, New Toronto, Ont.

* * *

WORTHINGTON PUMP & MACHINERY CORP. is planning to form an export subsidiary to consolidate its foreign business. It already has subsidiaries in England, France, Germany, Hungary, Austria and Italy.

* * *

PRAIRIE PIPE LINE CO., Tulsa, Okla., J. J. Linehan, general superintendent, announces construction of a 38-mile 8-inch oil pipe line from Florence, Kans., to new oil fields recently opened in McPherson county, western Kansas.

* * *

BETHLEHEM STEEL CO. is expanding its executive headquarters at Bethlehem, Pa., by adding six stories to its present large office building. The completed building will be 13 stories and will be the highest structure in Bethlehem.

* * *

RIVERSIDE FORGE & MACHINE CO., Jackson, Mich., is considering consolidation with the Pittsburgh Forging Co., Pittsburgh. Edwin Hodge Jr., president of the latter, has been made president of the Riverside company, succeeding G. H. Wilkins, who becomes treasurer.

* * *

PHILLIPS BROS., Philadelphia, have acquired a building adjacent to their present warehouse at Thirty-first and Jefferson streets, and will henceforth conduct a general iron and steel warehouse business, carrying a stock of hot rolled products. Partners in the firm are W. Vernon Phillips and John J. H. Phillips. James J. Collins is manager of the warehouse. The company's main offices are at 34 South Seventeenth street, Philadelphia.

* * *

FEDERAL SCREW WORKS, Detroit, has practically completed negotiations for absorption of the Superior Screw & Bolt Mfg. Co., Cleveland. Companies recently merged with Federal Screw Works include Chelsea Screw Co. and Michigan Screw Co. The Superior company is officered by B. G. Tremaine, chairman of the board; Norton T. Jones, president; H. D. Simpkins, vice president; C. L. Wedow, secretary, and A. E. Fox, treasurer.

* * *

COMBUSTION ENGINEERING CORP., New York, has discontinued its New England agency representation with Schumaker-Santry Co., Boston, and has established a district office 100 Arlington street, Boston. J. J. Brady is district manager, M. E. Yeager sales engineer and S. J. Harris merchandise salesman. F. L. Farrell and D. F. Jones, formerly of the Schumaker-Santry Co., have associated as Farrell &

Jones and have taken over accounts formerly handled by the former. The new firm is located at 10 High street, Boston.

Men of Industry

(*Concluded from Page 630*)

his childhood home in England, he will call on the larger British iron works and renew contacts with eminent scientists of England, who recently have been in America to witness Dr. Aston's process.

* * *

O. M. Carry, with offices in Chicago, is president of the new Michiana Products Corp., Michigan City, Ind., organized to take over the properties of the Chrobaltic Tool Co., manufacturer of heat and acid resisting alloy castings, and the Sheet Steel Products Co., manufacturer of oil filters.

W. B. Sullivan is first vice president and general manager, located at Michigan City.

* * *

W. P. Carpenter has resigned as treasurer of the Mullins Mfg. Co., Salem, O.

* * *

Charles Piez, president of Link-Belt Co., Chicago, has been elected a director of the Illinois Bell Telephone Co. to succeed the late Chauncey Keep.

* * *

Fred Foote, formerly superintendent of the Milwaukee Gray Iron Foundry Co., Milwaukee, now is foundry superintendent for the Prime Mfg. Co., Milwaukee.

* * *

John C. Alberts, since 1916 eastern representative of the machinery division, Osborn Mfg. Co., Cleveland, has resigned to become production manager of the Plainville Casting Co., Plainville, Conn. Prior to his connection with the Osborn company, Mr. Alberts was production clerk of the foundry division, Union Switch & Signal Co., Swissvale, Pa., and from 1914 to 1916 was instructor in the foundry division of the school of applied industries, Carnegie Institute of Technology, Pittsburgh.

* * *

C. H. Lage has become associated with the Caterpillar Tractor Co., Peoria, Ill. He formerly was with the International Harvester Co.

* * *

F. B. Lohnes, formerly with the General Electric Co., Lynn, Mass., now is associated with the Old Colony Foundry Co., East Bridgewater, Mass.

* * *

R. A. Wickes, of the treasury department of the Koppers Co., Pittsburgh, has been appointed assistant treasurer of the Western Gas Construction Co., Fort Wayne, Ind., a Koppers subsidiary. He succeeds William C. Marquardt, who resigned, effective Sept. 1, as treasurer and assistant secretary, positions he has filled for 12 years. Mr. Marquardt began his service with the Western Gas company when the Koppers Co. took it over. He had previously been employed as auditor for Arthur Young & Co., Chicago.

* * *

Henry Gardner has been appointed vice president in charge of sales of the Coppus Equipment Co., Worcester, Mass. He is a veteran railroad man, having first been employed at the Boston & Maine shops at Boston after graduating from the Massachusetts Institute of Technology in 1896. Later he was locomotive designer for the H. K. Porter Co., Pittsburgh, and chief draftsman for the Pittsburgh & Lake Erie railroad. He was supervisor of shop systems for the New York Central from 1908 to 1914 and later was with the Baltimore & Ohio shops as special mechanical engineer.

* * *

A. J. Wardle, president of the McKay Machine Co., Youngstown, O., machinist engineer and maker of special machinery, has also been elected treasurer and manager. In those offices he succeeds Thomas L. Thomas, who as noted in IRON TRADE REVIEW of Aug. 29 is now affiliated with the Youngstown Foundry & Machine Co., in that city.

E. R. Tyrrell, formerly plant engineer in the sheet department, Youngstown, O., works of the Sharon Steel Hoop Co., has been appointed chief engineer of the McKay Machine Co.

Obituaries

EDWARD WOOSTER, formerly vice president in charge of sales of the National Tube Co., McKeesport, Pa., died Aug. 29 in Pittsburgh. He had been connected with the National company for 25 years, resigning in 1922. Mr. Wooster started his business life with the Chapman Valve Co., Boston. After working for that company for five years he resigned to take charge of the sales department at Chicago for the National Tube Co. Later he was in charge of the sales department of the Walworth Mfg. Co., Boston, and in 1882 became secretary of the Crane Bros. Mfg. Co., Chicago. In 1886 he re-established connections with the National Tube company at St. Louis, later going to McKeesport, where he was assistant sales manager. He was made vice president of the company in 1903 and continued in that position until his resignation.

* * *

Henry A. Tuttle, engineer and inventor, and founder of the H. A. Tuttle Mfg. Co., Stamford, Conn., died recently in Upton, Mass.

* * *

Walter A. Windsor, president of the Marietta Mfg. Co., Point Pleasant, W. Va., builder of steel barges, died Aug. 20 in Cincinnati.

* * *

Frank E. Kirby, 80, well known marine architect and designer of passenger vessels on the Great Lakes, died Aug. 25 at his home in Bronxville, N. Y., after an illness of several years.

* * *

Edward T. Jones, 41, chief engineer, Curtiss-Wright Aeronautical Corp., Paterson, N. J., died at Ridgewood, N. J. He was a graduate of Cornell university and had been with the Wright interests since 1925.

* * *

George W. Thomson, middle west district manager of Norton Co., Worcester, Mass., died Aug. 22 at Chicago, after a brief illness. He had been with Norton Co. for 31 years, serving successfully as head of its billing department, salesman in Connecticut and Philadelphia, and since 1915 as district manager for the grinding wheel division, with headquarters at Chicago.

* * *

Henry L. Barton, 67, Detroit, for 15 years a production executive of the General Motors Corp., died Aug. 24. Before going to Detroit in 1909 he resided in Pittsburgh, where he was connected with the Pennsylvania railroad and later with the Westinghouse Machine Co., of which he was manager. He went to Detroit to launch the Metal Products Co. In 1914 he became associated with the General Motors Corp., from which he retired two years ago.

Machinery

August Business Approximates That of July —A Few Pending Large Lists Are Reported —Used Tools Meet With Good Demand

SALES of machinery for August were far ahead of the same month last year and compared favorably with July this year. Demand continues well spread and mostly for small lists and single items, a few exceptions such as the list for a new tube mill in the Pittsburgh district being reported. The widespread increase in the popularity of audible motion pictures and the resultant demand for incidental equipment have created new outlets for machine tools used in making this equipment. General Electric Co. has closed on about 60 tools for this work. Continental Motors Corp. is in the market for a large list of tools for its Muskegon, Mich., plant. Delayed deliveries have stimulated buying of used tools, but the supply of such units is meager.

New York, Sept. 3.—Machine tool buying continues heavy for this period with the outlook for better volume this month. August sales were far ahead of last year and compare favorably with July of this year with most dealers. Demand is well spread. Inquiry in some industries has stepped up. This is especially true of the sheet metal industry and as a result, sales and inquiry on shapers are noted in larger volume. No price changes have been forthcoming and delivery shows little improvement on standard tools. On some heavier tools delivery is reported further extended. Boring machinery can not be delivered until well into next year by some sellers. Machine shop trade is also good in this territory, sales of one or two units being numerous. All types of machinery are moving well. While the holiday period has held up business to some degree in some instances, this is not so evident as in other years. Used tools are moving well, but the supply of such units in a desirable condition is not heavy.

General Electric is buying heavily against two lists recently issued. Ths equipment is for the talking moving picture production plant of the company and includes more than 60 tools, although previous estimates of the value of the equipment needed appear to have been greatly exaggerated. The two lists include 20 engine lathes, 12 milling machines and a number of bench lathes. Several grinders, drills, including a radial drill, shapers, hand screw machines and other tools are included. New York Central is buying some tools for its Harmon plant.

Pittsburgh, Sept. 3.—Seasonal influences have had only a moderate effect upon machine tool sales in this district, and August business is regarded as satisfactory by most sellers. The market lacks large individual awards but there is a fairly steady run of small-lot orders. Sizable business is pending, including a large list for the new tube mill of the Aluminum Co. of America here. The Republic Iron & Steel Co. is inquiring for equipment for its new electrically welded tube mill although few machine tools are included in the list. Recent awards of cranes have largely depleted the list of pending business and this market generally is quiet.

Chicago, Sept. 3.—Several machinery sales houses in this territory report August orders closely approximating the July volume, while several of the larger sellers find the total slightly under July. A few others report slight gains for August. Further placements have been made during the week by International Harvester Co. for Farmall tractor works, at Rock Island, Ill. Continental Motors Corp. will order a large list of tools for Muskegon, Mich. Smaller companies doing work for Western Electric Co. have been ordering additional equipment for future production. A fair amount of fresh scattered inquiries is reported. Presses and drills have been active among the purchasers of a few items each. The delayed deliveries of the machine tool builders have tended to stimulate the buying of used equipment. The used tool market continues active. It is reported that builders of milling machines have extended delivery dates to January and even March.

Worcester, Mass., Sept. 3.—Machinery and tool production remains high. A New England aircraft corporation is in the market for an expansion program in East Hartford which will involve expenditure of $4,000,000. In addition the proposed erection of an airplane factory at New Haven gives reason to believe that activity may exceed earlier season records.

Cleveland, Sept. 3.—August was a comparatively slack month for most machinery interests, one dealer reporting that the month's total was under that of August, 1928. Automotive buybuying is rather desultory, some few scattered manufacturers inquiring for tools in single units or small quantities. Aluminum Co. of America will require some tools for a new forging shop here. This new shop will house some of the largest hammers in operation in the country. An order amounting to $50,000 for automotive spindle machines, has been received for December delivery to the Japanese arsenal. The screw machine products interest, who received the order, states that its plant is sold up through the rest of the year and on some machines through March.

CRANE ORDERS PLACED

Among single orders placed were: 15-ton crawler speedcrane for A. J. O'Brien, Sands Point, N. Y., to Forsythe Bros.; 6-ton truck crane for C. V. Dandignac, Port Richmond, Staten Island, N. Y.; 7½-ton crawler crane to David Ripley & Son and Frank W. Hopping, Newark, N. J.; 30-ton locomotive crane for Walsh Construction Co., Syracuse, N. Y.; these three to Browning Crane Co.

CRANE ORDERS PENDING

Among single orders pending were: 10-ton overhead crane for M. Prussian Machine Co., Detroit; 10-ton overhead electric crane for R. C. Armstrong & Bros., Atlanta, Ga.; 1 or 1½-yard gasoline crawler shovel for D. W. Stewart, Bennettsville, S. C.

Receives Orders for 25 Straighteners

Sutton Engineering Co., Pittsburgh, has received orders for about 25 straightening machines from a number of users. Included in this list are five tube straightening machines for the National Tube Co.; five straightening machines for the Youngstown Sheet & Tube Co.; four for the new bar mill in Indiana Harbor and one for its Youngstown tube works; two each for Republic Iron & Steel Co.'s new tube mill, Chase Brass & Copper Co.'s new Cleveland plant, and for Bethlehem Steel Co.'s Lackawanna and Lebanon works.

Orders for single machines have been received from the Timken Roller Bearing Co., Triangle Conduit Co., U. S. Metal Products Co., Henry Disston & Sons Co., Globe Steel Tube Co., Kelly Pipe & Machinery Co., McKinnon Industries Ltd., Tubeweld Inc., U. S. Aluminum Co., and Wheeling Steel Corp.

The Sutton Engineering Co. plant is running at capacity.

Buys Into Screw Company

Toledo Steel Products Co., Toledo, O., manufacturer of valves for the automotive industry, has purchased control of the Fostoria Screw Co., Fostoria, O., maker of bolts and bushings. Both companies have been large producers in their lines since the early days of the automobile business and are well known to the trade. The consolidation will only affect the sales, as both plants will be operated separately, it was said.

CONSTRUCTION and ENTERPRISE

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North Atlantic

HARTFORD, CONN.—Skayef Ball Bearing Co., 330 New Park avenue, closed bids Aug. 21 for a 2-story plant addition, 75 x 150 feet. (Noted May 23.)

HARTFORD, CONN.—Taylor & Fenn Co., 54 Arch street, manufacturer of castings, etc., has awarded contract for a 1-story foundry addition, 54 x 180 feet, to the Allyn Wadhams Co., 15 Lewis street, Hartford. Estimated cost about $50,000.

PLAINVILLE, CONN.—Trumbull Electric Mfg. Co. advises it has awarded contract to the Aberthaw Construction Co., Boston, for two plant buildings, one a 3-story with basement, 50 x 125 feet, the other a 2-story, 90 x 125 feet, Some equipment will be added. (Noted Aug. 29.)

STAMFORD, CONN.—Pitney-Bowes Postage Meter Co., manufacturer of meter machines, advises it will construct a 2-story plant addition, 60 x 240 feet. Contracts have not been awarded. Fletcher Thompson Inc., 542 Fairfield avenue, Bridgeport, Conn., is architect and engineer. (Noted Aug. 29.)

BOSTON—New England Sign Advertising Co. Inc., 79 Sudbury street, recently incorporated, advises it is in the market to purchase machinery and dies for the manufacture of celluloid changeable letters. (Noted Aug. 29.)

SOUTH DARTMOUTH, MASS.—E. H. R. Green awarded contract for construction here of a 1-story hangar, 120 x 120 feet, to the Austin Co., 120 Broadway, New York. Estimated cost about $250,000.

WORCESTER, MASS.—Leland-Gifford Co., manufacturer of machine tools and crankshaft grinders, will build a 1-story plant addition, 121 x 196 feet, for machine shop purposes.

WORCESTER, MASS.—Reed-Prentice Corp., 677 Cambridge street, manufacturer of machine tools, will begin immediate construction of a plant addition, 60 x 150 feet, to provide more room on the assembly floor.

AUBURN, N. Y.—Mercy hospital, care Dr. L. F. O'Neil, chairman of building committee, is having plans prepared for the construction of a 3-story hospital building, including a power plant. Probably mature in the fall.

BUFFALO—Donner Steel Co., 475 Abbott road, has purchased a tract adjoining its plant here for the construction of a finishing mill to cost about $2,000,000.

BUFFALO—Sterling Engine Co., 1250 Niagara street, had preliminary plans prepared for a 2-story plant addition, by architects, F. J. & W. A. Kidd, 522 East Franklin street.

LACKAWANNA, N. Y.—Buffalo Slag Co. will award contract for the construction of an addition to its plant here early in September. Estimated cost about $750,000.

LONG ISLAND CITY, N. Y.—Rainbow Metal Units Corp. has leased a plant building at 330-6 William street here for the manufacture of pressed steel products.

NEW YORK—F. L. Smith Machine Co. Inc. has filed plans for a warehouse addition at 633-45 West Forty-fourth street, estimated to cost $25,000.

NEW YORK—Dictograph Products Co., 220 West Forty-second street, has awarded contract for the construction of a 1-story plant addition, 100 x 100 feet, at 149th street, Woodhaven, to the Barney-Ahlers Construction Co. Estimated cost about $50,000.

RYE, N. Y.—Hood, Godley & Fouilhoux, architects, 40 West Fortieth street, New York, are taking bids until Sept. 9 for a boiler house and gymnasium for the Y. M. C. A. here.

GROVE CITY, PA.—Cooper-Bessemer Corp. plans construction of a power plant.

McCLINTOCKVILLE, PA.—Keystone Public Service Co., Oil City, Pa., will soon receive bids for the construction of a substation to be built near here.

PHILADELPHIA—Wilkening Mfg. Co., Fifteenth and Mt. Vernon streets, manufacturer of piston rings, contemplates building a 2-story plant at Seventy-first and Spring streets.

PHILADELPHIA—Stokes & Smith, Summerdale station, manufacturer of box machinery, has been issued a permit for the construction of a grinding mill.

PHILADELPHIA—I. Fischman & Sons, Tenth and Allegheny streets, manufacturer of soda fountains, is taking bids through Clarence E. Wunder, architect, 1520 Locust street, for construction of a new plant on Erie street. (Noted July 25.)

East Central

AURORA, ILL.—Lyon Metal Products Co., Montgomery street, awarded contract for a 1-story power plant to the Sumner Sollitt Co., 307 North Michigan avenue, Chicago. Estimated cost about $75,000.

CHICAGO—Bloxham Aero Supply Co., 3011 South Wabash avenue, manufacturer of airplane accessories, is adding about 6000 square feet of floor space to its plant.

CHICAGO—General Porcelain Enameling Co., 4100 Schubert avenue, has been issued a permit for construction of a 1-story plant addition, 26 x 125 feet.

CHICAGO—Crane Co., 836 South Michigan boulevard, manufacturer of valves, fittings and plumbing specialties, has been issued a permit to construct a plant building at 4100 South Kedzie avenue. Estimated cost $110,000.

CHICAGO—Scully Iron & Steel Co., 2364 South Ashland avenue, advises through George W. Mason Jr., vice president, it has awarded contract for a 1-story warehouse containing 36,000 square feet to M. Boyle & Co., 105 West Monroe street. (Noted Aug. 22.)

STERLING, ILL.—Northwestern Barb Wire Co. contemplates the construction of a boiler house and plant.

NEWCASTLE, IND.—Fire recently damaged the plant of the Davis Foundry Co. Estimated loss about $50,000.

SOUTH BEND, IND.—Bendix Brake Co., Bendix drive, will build a 2-story administration building, 40 x 150 feet, as part of expansion program necessitated by increased business.

VALPARAISO, IND.—Acco Corp., recently incorporated to manufacture metal and wood products, etc., has taken over the building on South Franklin avenue formerly occupied by the German Evangelical church for manufacturing purposes.

DETROIT—Inter-City Trucking Service Inc., 432 St. Aubin street, is having plans prepared by Albert Kahn Inc., Marquette building, for a 1-story warehouse and garage to be built at Twelfth and Porter streets. Estimated cost $125,000.

DETROIT—Highland Park Tool Co., 15 Victor

avenue, advises through G. Laughlin, general manager, it is remodeling a building formerly occupied by the United Automatic Co., at 3801 Trenton avenue. General machine shop equipment, including heat treating equipment is being purchased. (Noted Aug. 29.)

LANSING, MICH.—State administration board approved the expenditure of $465,549 for the construction of a new power plant for the Michigan home and training school.

PORT HURON, MICH.—Little Bros. Foundry Co.'s plant was recently damaged by fire. Estimated loss was about $2000.

CANTON, O.—Tyson Roller Bearing Co., recently organized, will soon start construction of the first unit of a plant for manufacturing bearings. Frank Tyson, 1211 Louisiana avenue northwest, is chief engineer.

CLEVELAND—Pipe Machinery Co., 930 East Seventieth street, awarded contract for a 1-story plant addition to the Griffin-Zimmerman Co., Engineers building. (Noted Aug. 22.)

CLEVELAND—McKinney Tool & Mfg. Co., 1688 Arabella street, awarded contract for a plant addition, 21 x 99 feet, to the Albert M. Higley Co., 2036 East Twenty-second street.

CLEVELAND—Great Lakes Aircraft Corp., 16800 St. Clair avenue, awarded contract to the Austin Co., 16112 Euclid avenue, for the construction of a plant addition containing about 10,000 square feet. Estimated cost $30,000.

CLEVELAND—Electric Products Co., 1725 Clarkstone road, has awarded contract for a 2-story plant addition, 80 x 90 feet, to the Albert M. Higley Co., Plymouth building. (Noted Aug. 15.)

CLEVELAND—Nickel Plate Development Co., care Charles Conley, architectural engineer, Terminal Tower building, has awarded contract for a one and 2-story warehouse, 50 x 260 feet, in the East Ninth street and Orange avenue district to the Wm. Dunbar Co., 8201 Cedar avenue.

CLEVELAND—Briggs Mfg. Co., 12825 Taft avenue, manufacturer of automobile bodies, has leased the plant of the former Walker Motor Co., containing about 40,000 square feet of space, which adjoins its plant here for expansion purposes. General offices are at 11631 Mack avenue, Detroit.

CLEVELAND—Eaton Axle & Spring Co., 6515 Carnegie avenue (division of Eaton Bumper & Spring Service Co., Sixty-fifth street and Central avenue) awarded general contract for a 1-story assembly plant addition, 55 x 126 feet, to the H. K. Building & Construction Co., 1319 West 103rd street.

CLEVELAND—Austin Co., 16112 Euclid avenue, has been awarded a contract for construction of the Soviet automobile plant at Nizhni Novgorod, Russia, to produce 100,000 Ford automobiles annually. A power house, foundry and equipment will be included for a complete manufacturing plant. Ford officials will assist in equipping and operating the plant.

COLUMBUS, O.—Exact Weight Scale Co., 267 West Spring street, has acquired a site on West Fifth avenue for the construction of a new manufacturing plant. Plans are being prepared.

DAYTON, O.—Gartland, Haswell & Rentchler Foundry Co., 1016 Herman avenue, will build a cupola charging building estimated to cost about $20,000.

DAYTON, O.—Inland Mfg. Co., subsidiary of General Motors Corp., Detroit, manufacturer of steering wheels and automobile parts, will build an addition which will double the present capacity.

HICKSVILLE, O.—City recently voted favorably for the construction of a municipal lighting plant. (Noted Aug. 22.)

PORT CLINTON, O.—Matthews Boat Co. has started construction of a plant addition, 45 x 136 feet, to be used as additional manufacturing space.

RAVENNA, O.—A. C. Williams & Co. advises it has purchased plant of the Universal Smokeless Boiler Co. and is equipping the plant with grinders, ore ovens and cleaning equipment, etc.

SALEM, O.—City has plans for the construction of a waterworks system including pumping plant. Estimated cost about $200,000.

TOLEDO, O.—City Auto Stamping Co., of which Amos Lint, president of the City Machine & Tool Co., Toledo Factories building, is president, announced that its nearly completed plant will be enlarged about 60 per cent. (Noted March 7.)

TOLEDO, O.—Herman Doehler, president of the Doehler Die Casting Co., Prospect and Smead avenues, through the chamber of commerce revealed the company is contemplating establishing a plant here for the manufacture of metal furniture. Reports are that a merger with one of the largest metal furniture manufacturers is in prospect. General offices are at 386 Fourth avenue, New York.

APPLETON, WIS.—O'Keefe-Orbison Engineering & Construction Co., 201 East College avenue, is working on plans for three large garage and repair shop buildings for three local clients. Each will cost about $40,000.

KOHLER, WIS.—Kohler Co., manufacturer of plumbing ware, power and light units, has plans for the construction of a 6-story plant addition, 80 x 600 feet. Richard Phillip, 405 Broadway avenue, Milwaukee, is the architect.

MILWAUKEE—Smith Engineering Works, 78 Capitol drive, has started construction of a 1-story plant addition, 90 x 150 feet, to enlarge the manufacturing department of the rock crusher division. Estimated cost about $75,000 with equipment.

MILWAUKEE—Milwaukee Electric Railway & Light Co., Third and Michigan avenues, awarded contract for a 1-story shop addition to the Foster Construction Co., 114 Wisconsin avenue.

MILWAUKEE—Oswald Jaeger Baking Co., 914 Somers street, will build a private garage and service building, 80 x 150 feet, on Tenth street, between Somers and Galena streets, at a cost of about $50,000.

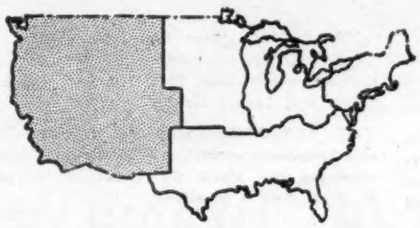
MILWAUKEE—Tank Aero Corp., 271 First avenue, has plans for the construction of a 2-story plant addition, 100 x 150 feet, or leasing space of about same proportions. The company will probably spend in excess of $60,000 for equipment.

MILWAUKEE—Wisconsin Ornamental Iron & Bronze Co., 1665 Booth street, recently merged with the General Bronze Co., Long Island City, N. Y., will soon start construction of plant additions here which will practically double the present output.

OREGON, WIS.—W. G. Kirchhoffer, consulting engineer, Madison, Wis., is preparing plans for a $20,000 water works improvement at the State industrial school for girls here. In addition to pumps, compressors and a 100,000-gallon steel reservoir, the work includes 1850 feet of 8-inch and 2580 feet of 6-inch cast iron water mains. Charles A. Halbert, Madison, is state chief engineer.

OSHKOSH, WIS.—Wisconsin-Timken Axle Co., High street, has broken ground for a 1-story addition, 40 x 132 feet, to its heat treating shop, at a cost of about $30,000. A machine shop addition is being completed. (Noted Aug. 1.)

TWO RIVERS, WIS.—Eggers Veneer Seating Co. has awarded contracts for the erection of additions costing about $75,000 and designed by W. Fred Dolke, consulting engineer, 9 South Clinton street, Chicago.



Western States

ALAMEDA, CALIF.—San Francisco Airdrome Inc., through Lynn A. Schloss, advises it will construct an airdrome, but contract has not been awarded. (Noted Aug. 15.)

LONG BEACH, CALIF.—Consolidated Aircraft Corp., 2050 Elmwood avenue, Buffalo, has purchased a 30-acre tract adjacent to the Long Beach airport for erection of a manufacturing plant.

LOS ANGELES—Southern Pacific railroad, 65 Market street, San Francisco, awarded contract for a group of buildings here, including a power house and machine shop, to Robert McKee, 515 Hewitt avenue, Los Angeles.

LOS ANGELES—California Aviation Club, care H. J. Borneson, 355 South Ardmore avenue, has plans for the construction of an airport at National and Sawtelle boulevards. Shops, hangars and an administration building are included in the plans. A. C. Semrow, Douglas building, is engineer.

OAKLAND, CALIF.—C. H. Wills Motor Corp., Eleventh avenue, Minneapolis, manufacturer of busses and trucks, has purchased buildings formerly used by the Star car dealer, where it will establish a plant to care for its Pacific Coast business.

KLAMATH FALLS, OREG.—Fire recently damaged the plant of the Spring Street Iron Works, causing a loss of about $100,000.

PORTLAND, OREG.—Port of Portland will receive bids Sept. 8 for construction of two hangars and a central administration building at the Swan Island airport. Plans were prepared by architects Young & Roald.

EVERETT, WASH.—City water department will call bids within a few days for construction of an office building and machine shop.

SEATTLE—Austin Co. has prepared plans and will construct three manufacturing buildings for the Aircraft Plywood Inc., Salmon Bay waterway, Seattle. The buildings will be of heavy timber construction and will cost $125,000.

STEVENSON, WASH.—Plans are being prepared by Miller Engineering Co., Seattle, for construction of a municipal water system and hydroelectric plant to cost $70,000. Plans call for 2½ miles of pipe and a concrete reservoir of 200,000 gallons.

Southern States

JACKSONVILLE, FLA.—Ha-Boy Metal Products Co., manufacturer of metal ventilating shades, etc., has plans for expansion which will triple the present plant output, according to William E. Boyett, president.

GUTHRIE, OKLA.—J. S. Cosden Inc. plans construction of an oil absorption gasoline plant near Lovell, Okla., with a capacity of 50,000 gallons daily.

OKLAHOMA CITY, OKLA.—Tennison Bros., West Main street, manufacturers of sheet metal products, have started construction of a 1-story plant building. Estimated cost about $70,000.

TULSA, OKLA.—Tulsa Cement Co., care C. B. Douglas, Mayo building, has plans for the construction of a cement manufacturing plant. Estimated cost about $1,800,000.

MARYSVILLE, TENN.—Aluminum Co. of America, Pittsburgh, will build an additional potroom building, 44 x 990 feet, at its plant here to increase its production.

ARANSAS PASS, TEX.—Humble Oil & Refining Co. will build an electric generating plant to supply its refinery at Ingleside, Tex.

DALLAS, TEX.—Simms Oil Co. has authorized expenditure of $280,000 for improvements to its Dallas refinery, including construction of a gasoline extraction plant, new bubble towers, heat exchanging equipment, etc. F. N. Williams is plant superintendent.

HOUSTON, TEX.—Houston Armature Works, Preston street, has plans for the construction of a 1-story plant on a tract, 50 x 126 feet, on Prairie avenue. Estimated cost about $40,000.

RICHMOND, VA.—Virginia Electric & Power Co., Richmond, has filed final application with the Federal Power commission covering a 25,000-kilowatt hydroelectric development on the Roanoke river. Construction will probably start next year. (Noted March 21.)

West Central

DES MOINES, IOWA—Des Moines Steel Building Co., manufacturer of steel parts, plans construction of a plant addition, according to John H. Albrecht, president.

WITCHITA, KANS.—All-Steel Products Co. plans construction of a brick and steel shop building, 75 x 150 feet, including machine shop blacksmith and welding shop, at 704 South Wichita street.

DULUTH—Duluth Steam Corp. will soon award a contract for construction of a steam generating plant at Third avenue west and Commerce street. J. J. Dwyer, Hotel Duluth, is engineer. Estimated cost about $1,250,000.

GRANITE FALLS, MINN.—Council has signed a contract with the Northern States Power Co., 15 South Fifth street, Minneapolis, accepting its proposal to build a steam power plant here. Estimated cost $2,500,000.

MINNEAPOLIS—Universal Air Lines has construction under way of a machine shop, 25 x 100 feet, at Wold-Chamberlain field here. Estimated cost about $25,000.

ST. PAUL—Midway Foundry Co. has been issued a permit for the construction of an addition to its plant at Raymond and Wabash avenues.

KANSAS CITY, MO.—Kansas City Aircraft Co. has purchased a 5-acre tract adjoining the Fairfax airport for manufacturing airplanes. Construction of one plane will be carried on at the Parker Machine & Fan Works, 709 North Sixth street, pending erection of the plant at the airport.

ST. LOUIS—Pierce Petroleum Corp., 709 Locust street, is erecting a one-story garage and repair shop, 70 x 119 feet, at Seventeenth and Locust streets.

ST. LOUIS—Semi-Steel Casting Co., Third and Loughboro streets, has acquired a building adjoining its plant for expansion purposes. H. P. Hubbel is president.

Canada

CALGARY, ALTA.—Radio Industries of Canada Ltd., Winnipeg, Man., has established headquarters here and proposes to erect a $30,000 manufacturing plant in the early future.

LETHBRIDGE, ALTA.—Western Foundries Ltd. plan to build a $25,000 foundry here in the early future. Two buildings will be erected, one 48 x 80 feet and the other 60 x 115 feet. Equipment for plant will be purchased.

VANCOUVER, B. C.—Seaboard Oil Refining Co., recently incorporated with $2,000,000 capital, will proceed at once with the construction of an oil refinery on a 10-acre tract between the Second Narrows bridge and Lynn creek here. David B. Boyd, Standard Bank building, is Vancouver manager for the company.

EAST SELKIRK, MAN.—Canadian Industries Ltd., 611 Paris boulevard, Winnipeg, Man., has purchased a site here and will start work immediately on the erection of a plant for the manufacture of explosives, etc.

WINNIPEG, MAN.—Hydro Electric System, 55 Princess street, will install three 200-gallon motor driven rotary oil pumps for hydraulic turbine governors. M. Peterson, city hall, is clerk.

BRIDGEBURG, ONT.—Trico Products Corp., 817 Washington street, Buffalo, has purchased a tract here, 80 x 156 feet, upon which it plans to build a plant with at least 20,000 square feet of floor space.

DELHI, ONT.—Imperial Tobacco Co. of Canada, 3810 St. Antoine street, Montreal, Que., will install a $25,000 auxiliary power plant here. Electricity will be generated by diesel engine, for the company's $150,000 grading station.

MOUNT DENNIS, ONT.—Dominion Bridge Co., 1139 Shaw street, Toronto, Ont., has purchased a site here for the erection of a plant to cost $1,500,000. Construction work will be started next spring.

OSHAWA, Ont.—Standard Brick Co., Toronto, Ont., will establish a manufacturing plant here. Construction contract will be awarded at an early date.

BEAUHARNOIS, QUE.—Beauharnois Electric Co., 107 Craig Street west, Montreal, Que., has awarded contract to the Beauharnois Construction Co., 112 St. Lawrence street, for the construction of canal and power development plant here to cost $65,000,000. Preliminary work will be started at once. Consulting engineer, Fred Brown, 117 St. Catharine street west, Montreal. (Noted April 18.)

VILLE LASALLE, QUE.—Burroughs Welcome & Co., 643 Craig street west, Montreal, Que., has awarded contract to the Turner Construction Co., Greybar building, New York, for the erection of a $450,000 plant here. Architects, Lawson & Little, 1164 Beaver Hall hill, Montreal, Que.

EXPANSE, SASK.—The salt plant of Bishop & Lent Co., Cincinnati, was damaged by fire to the extent of $200,000. Power plant and storage house were included. Owners will rebuild. Local manager is N. J. Hip.

Recent Incorporations

CHICAGO—Artcrest Co., 4248 North Western avenue, has been incorporated with $30,000 capital to manufacture and sell iron and wood furniture, by Edward Graff.

CHICAGO—Diehl Vending & Supply Co., 4514 Lincoln avenue, has been incorporated with $20,000 capital to manufacture and deal in weighing machines, etc., by J. H. Diehl.

CHICAGO—Purdy Moore Mfg. Co., 3104 South Michigan avenue, has been incorporated to manufacture and sell machinery, equipment

(*Concluded on Page* 640)

DETROIT STEEL SERVICE

Mr. Thomas H. Booth, Vice President and his Detroit Ward-house staff have provided outstanding service facilities for this great automotive district.

EDGAR T. WARD'S SONS CO.

(Division of COLUMBIA STEEL & SHAFTING CO.)

DETROIT WARD-HOUSE—1300 Fort St., West

BOSTON, 44 Farnsworth St.
BUFFALO, 39 River St.
CHICAGO, 1455 W. 37th St.
CLEVELAND, 1210 E. 55th St.
MILWAUKEE—57 Ave. and Burnham St.
NEWARK, 400 Frelinghuysen Ave.
PHILADELPHIA, Cedar and Westmoreland Streets

The World's Largest Distributors of Fine Steel Products

Construction and Enterprise

(*Concluded from Page* 638)

and novelties made of iron, steel or wood, by I. F. Purdy.

CHICAGO—Dim-A-Ray Corp., 6801 North Clark street, has been incorporated with $10,000 capital to manufacture and sell automotive specialities and accessories, by J. C. Snow.

CHICAGO—S & W Mfg. Co., 312 North May street, has been incorporated with $15,000 capital to manufacture hardware specialties, metal stampings and operate a general machine shop, by Harry E. Stell.

CHICAGO—Burton Mfg. Co. Inc., 721 North Michigan avenue, has been incorporated with $2000 capital to manufacture and sell lighting fixtures, equipment and supplies by David A. Riskind.

CHICAGO—Best-Way Typesetting Co., 149 West Ohio street, has been incorporated with $40,000 capital to manufacture and deal in inventions, machines and improvements for printing, by Starr M. Miller.

CHICAGO—C & G Corp., 2801 Fulton street, has been incorporated with $50,000 capital to manufacture and sell automobile accessories, parts for machinery and machine shop equipment, by Ben Golden.

CHICAGO—Charles H. Joy Inc., 457 North Racine avenue, has been incorporated with 250 shares of no par stock to manufacture and deal in duplicating machines, tools and equipment, by Charles H. Joy.

ELKHART, IND.—Safe Play Co. Inc. has been incorporated with $10,000 capital to manufacture and sell toys, tools and instruments from metal or wood. Ruskin E. Phillips, 215 North Michigan avenue, is one of the incorporators.

INDIANAPOLIS—Indianapolis Machinery & Supply Co. has been incorporated with 1000 shares of no par stock to manufacture and deal in machinery, plant and machine shop equipment. Herbert E. Wilson, 1556 Consolidated building, is one of the incorporators.

BOSTON—New England Marine Sales Inc. has been incorporated with $60,000 capital to manufacture marine specialties, gas engines, etc., by E. P. A. Simpson, 47 Wedgemere avenue, Winchester, Mass.

BOSTON—Neon Sign Companies of America has been incorporated with 5000 shares of no par stock to engage in electrical construction, signs, supplies, etc. Jacob J. Sollogub, 24 Seaver street, Roxbury, Mass., is president.

NORTH ADAMS, MASS.—Northern Airlines Inc. has been incorporated with $100,000 capital to manufacture aircraft and parts. William A. O'Hearn, 90 Washington avenue, is president.

SPRINGFIELD, MASS.—Hampden Automotive Products Inc. has been incorporated with $500,000 of preferred and 19,500 shares of common stock to manufacture and deal in automobiles, appliances and accessories. Meyer J. Schwartz, 16 Stratford terrace, Springfield, is treasurer.

WORCESTER, MASS.—Morgan Electrical Mfg. Co., 10 Hygeia street, has been incorporated with 1000 shares of no par stock to manufacture and deal in electrical fittings, metal stampings, etc., by John W. Bloom.

DETROIT—Marcum Air Brake Signal Co., 416 Book building, has been incorporated with $25,000 capital to manufacture and deal in railroad appliances and safety devices, by Roland B. Worthington.

STURGIS, MICH.—Sturgis Posture Chair Co. has been incorporated with $20,000 capital to manufacture and deal in steel products, by R. H. VanBuren.

HACKENSACK, N. J.—Consolidated Production Corp. has been incorporated with $750,000 preferred and 7500 shares of common stock to engage in business as contractor, by Felter, Schroeder & Smith, 171 Main street, Hackensack.

LEONIA, N. J.—General Cell Structure Corp. has been incorporated with 100 shares of common stock to manufacture cells, by S. A. D. Jones, 27 William street, New York.

NEWARK, N. J.—Barr Knox Corp. has been incorporated with $100,000 capital to manufacture metal stamping machines, by Herbert Parvin, 128 Market street, Newark.

TRENTON, N. J.—Walco Wiring Devices Inc. has been incorporated with $125,000 capital to manufacture electrical devices, by Bleakly, Stockwell & Burling, Wilson building, Camden, N. J.

UNION CITY, N. J.—Allectric Synchronized Machine Corp. has been incorporated with 500 shares of common stock to manufacture moving picture machines, by Platoff, Saperstein & Platoff, Union City.

NEW YORK—Gothic Metal Novelty Works has been incorporated with 100 shares of common stock, by I. A. Rosenberg, 1457 Broadway, New York.

NEW YORK—Benog Construction Corp. has been incorporated with $40,000 preferred and 60 shares of common stock, by C. N. Glasgold, 1440 Broadway, New York.

NEW YORK—William J. Shore has been incorporated with $20,000 capital to engage in the construction business, by D. Lowenthal, 2 Rector street, New York.

NEW YORK—Down Town Plating Works has been incorporated with 200 shares of common stock to engage in the electroplating business, by A. M. Avallone, 119 Twelfth street, Brooklyn, N. Y.

OKLAHOMA CITY, OKLA.—Spengler Tool Co. has been incorporated with $50,000 capital to manufacture and deal in oil field tools, by A. F. Spengler, Franklin building.

TULSA, OKLA.—Clamp Tank & Specialty Co. has been incorporated with $100,000 capital to manufacture specialties for oil field tanks, by A. B. Patterson, care Patterson Steel Co., Tulsa.

FORT WORTH,TEX.—Airport Engineering & Construction Co. has been incorporated with $10,000 capital, by A. P. Barrett, Fort Worth National Bank building.

New Trade Publications

HEAT TREATING BATHS—Despatch Oven Co., Minneapolis, has issued a bulletin on its line of electric, oil and salt baths for heat treating use.

NICKEL ALLOYS—International Nickel Co., New York, has issued another buyers' guide, bringing its list to date. It offers a compilation of makers of various nickel alloy steel products for guidance of buyers who desire to obtain materials of this analysis.

RIVETERS—A turret riveter for rapid work is illustrated in a bulletin by the Hanna Engineering Works, Chicago. A rotating head gives mounting for four horns or noses, giving the capacity of four machines, each with a single nose.

ELECTRIC CONTROLLER—An automatic brake-stop printing press controller is featured in a bulletin by the Monitor Controller Co., Baltimore. Illustrations show the entire mechanism, details of control and diagrams of floor and wall space occupied.

METAL TIE BINDING—A method of using wire as a tie binding for packages, the fastening being accomplished by one stroke of a lever, is described in a catalog of the Gerrard Co. Inc., Chicago. Application of the method to a variety of packages and details of the device supplement the text, which claims much economy in packaging.

FIRE FIGHTING EQUIPMENT—American Lafrance & Foamite Corp., Elmira, N. Y., has published a catalog covering portable fire-fighting equipment, which is in reality a text-book on fire apparatus. It is indexed to give immediate access to any form of equipment. The book is arranged in eight sections which segregate the various forms.

SYNCHRONOUS GENERATORS—Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has issued two bulletins on two of its synchronous generators. One is a fabricated motor generator set. The application, distinctive features and details of construction are described and illustrations include views of the sets complete and various details of construction. The other is an engine-driven A-C generator, designed for direct connection to steam, gas or oil engines. It is built of structural steel, fabricated with the electric arc.

FLEXIBLE SHAFT MACHINES—Linick, Green & Reed Inc., Chicago, has in preparation for issue about Sept. 15 a book describing various types of flexible shaft machines in use in the metal trades. More than 600 tools will be illustrated, many of them lately developed designs. Uses include grinding, reaming, burnishing, cutting, snailing, chasing, roughing, hammering, and polishing.

ACID RESISTING METAL—Duriron Co. Inc., Dayton, O., has issued a bulletin on Durimet, an alloy it has developed for resisting corrosive action of hot weak solutions of sulfuric acid. It is made in three grades for meeting various needs. The bulletin gives a table of resistances to acid and suggests uses in various branches of industry. Another bulletin by the same company features its centrifugal pump designed for use with corrosive liquids. Details and specifications are given and illustrations show construction.

Model 24-P ejection type press, having box 100" long, 20" wide, 42" deep. Finished bales measure 20" x 14" x 14" minimum. Can be equipped with power operated loading hopper.

LOGEMANN SCRAP METAL PRESSES

Hydraulically compressed scrap commands at all times the *best price*, and can be conveniently stored and held for favorable markets; it is easily handled; it practically eliminates corrosion; it saves much time in remelting; cars can be easily loaded to capacity.

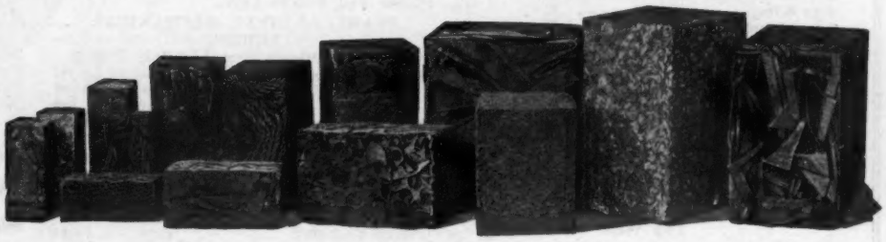
***LOGEMANN Presses* are built in several types and sizes to suit all requirements.**

You cannot go wrong on a LOGEMANN—it's a money maker from the day it is set in operation.

PIONEERS!

LOGEMANN Scrap Metal Presses, pioneers in this industry, enjoy an enviable reputation for long life and economical operation. They are in daily use in practically every large sheet mill, stamping plant, scrap yard, and in metal-working establishments of all kinds.

Our many years of accumulated experience, and services of our Engineering Department are at the disposal of all plants accumulating metal scrap of any kind.



LOGEMANN BROTHERS COMPANY, 3126 Burleigh St., MILWAUKEE, WIS.

Pipe and Tube Prices—Plate Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

To large jobbers these discounts are increased by 1 point and two supplementary discounts of 5 per cent on black, and 1½ points and two supplementary discounts of 5 per cent on galvanized.

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLINGS

Butt Weld

	Black.	Galv.
⅛ and ⅜-inch	+11	+36
½-inch	23	5
¾-inch	28	11
1 and 1¼-inch	31	15
1½ and 2-inch	35	18

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	9
2½ to 3½-inch	28	12
4 to 6-inch	30	17
7 and 8-inch	29	16
9 to 12-inch	26	11

REAMED AND DRIFTED

2-inch to 6-inch—Two points less than above

EXTRA STRONG, PLAIN ENDS

⅛ and ⅜-inch	+13	+48
½-inch	23	7
¾-inch	28	12
1 to 2-inch	34	18

Lap Weld

2-inch	29	13
2½ to 4-inch	34	20
4½ to 6-inch	33	19
7 and 8-inch	31	17
9 to 12-inch	21	8

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½-inch	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	.....

Jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized wrought iron pipe.

On extra or double extra strong pipe fitted with threads and couplings basing discount lowered 5 points from plain end price. Fitted with threads only, basing discount lowered 3 points for random lengths.

Boiler Tubes

Pittsburgh carload discounts

STEEL (Lap Weld)

2 and 2¼-inch	40 off
2½ and 2¾-inch	48 off
3-inch	54 off
3¼ to 3¾-inch	56 off
4-inch	59 off
4½ to 6-inch	48 off

Subject to two 5 per cent discounts on full carload shipments. On less than 10,000 pounds, base discount reduced 6 points and one 5 per cent allowed. Over 10,000 pounds to carload. base discount reduced 4 points and two 5 per cents allowed.

CHARCOAL IRON

1½-inch	1 off
1¾-inch	8 off
2 and 2¼-inch	13 off
2½ and 2¾-inch	16 off
3-inch	17 off
3¾ to 3½-inch	18 off
4-inch	20 off
4½-inch	21 off

Subject to 10 per cent discount on full carload lots. On less than 10,000 pounds, base discount reduced 2 points and no preferential allowed. On 10,000 pounds to carload, 5 per cent preferential allowed.

SEAMLESS COLD DRAWN

1-inch	63 off
1¼ and 1½-inch	55 off
1¾-inch	39 off
2 and 2¼-inch	34 off
2½ and 2¾-inch	42 off
3-inch	48 off
3¼ and 3½-inch	50 off
4-inch	53 off
4½, 5 and 6-inch	42 off

SEAMLESS HOT ROLLED

1¾-inch	39 off
2 and 2¼-inch	40 off
2½ and 2¾-inch	48 off
3-inch	54 off
3¼ and 3½-inch	56 off
4-inch	59 off
4½, 5 and 6-inch	48 off

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed.

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.30 per cent.....50 to 55 off

Carbon 0.30 to 0.40 per cent.....45 to 50 off

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Outside diameter	Gage	Net prices per foot f.o.b. Pittsburgh Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅜-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for lengths over 24 feet.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, date Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weight.

Over 100 to and including 110 inches	.05c
Over 110 to and including 115 inches	.10c
Over 115 to and including 120 inches	.15c
Over 120 to and including 125 inches	.25c
Over 125 to and including 128 inches	.50c

Plates less than ¼-inch or lighter than 11 pounds per square foot.

Over 72 to and including 84 inches	.10c
Over 84 to and including 96 inches	.20c
Over 96 to and including 100 inches	.30c

Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier.

GAGE

Plates Not Exceeding 72 Inches Wide

Plates less than ¼-inch gage, to and including $\frac{7}{32}$-inch; or lighter than 10.2 pounds per square foot, to and including 7.65 pounds square foot..... .20c

Plates Over 72 Inches Wide

Plates less than ¼-inch gage, to and including $\frac{7}{32}$-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds square foot.... .20c

Plates ordered 7.65 pounds square foot .30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull materials subject to U. S. Navy Dept. specifications for medium or soft steel	.10c
High tensile hull steel subject to U. S. navy department or equivalent specifications	1.00c
Boiler steel subject to U. S. navy department specifications, classes A-B	1.50c

Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.

Floor Plates

Checkered plates 1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection .....No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet.....No extra

Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.10c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (Including straight taper plates)

Additional extra ..... .10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with re-entrant angles)

Additional extra ..... .20c